

FLIGHT

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The New Boats

READING between the lines, so to speak, one may obtain from the news of the flying boats now in course of construction at Rochester some idea of the future Empire air route policy which Imperial Airways and the Air Ministry have been evolving for the last year or two. For instance, from the fact that the number of passengers to be carried is relatively small for the size and power of the new boats, it may be assumed that mails rather than passengers will form the greater proportion of the available payload.

The fact that sleeping accommodation is provided on board, and that very complete night flying and radio equipment will be carried, seems to indicate that the policy, when the new boats go into service, will be to send each machine right through from England to Australia, and not to work them in relays. One result of such a policy would be that night flying over certain sections of the route should be quite practicable, as the cabins will probably be so quiet that passengers could sleep comfortably without being disturbed by the engine noise, and flying by night above the sea should be much more comfortable, as the air should be quite free of "bumps." The average route speed resulting in the first place from a high cruising speed, and in the second from night-flying over certain sections of the route, should thus be fairly high.

From a technical point of view, the new boats will represent a marked step forward in performance and comfort. A cruising speed of at least 150 m.p.h. may be expected, and, although it would certainly be possible to increase this figure, it should be remembered that there must be a definite relationship between performance and economy of operation. The new boats may be assumed to represent what Short Brothers and Imperial Airways between them consider the most useful compromise for the routes over which it is intended to operate. Imperial Airways have always placed comfort before speed, and the new boats do not indicate any

change in that policy, for, although the speed has gone up by some 50 per cent. compared with the boats hitherto operated, the comfort will probably be found to have increased at least in the same ratio.

Army Aircraft

LAST week the Army was engaged in the most extensive manoeuvres which have been undertaken since 1925, but, it is strange to record, the number of aircraft engaged this year was the same as in the manoeuvres of ten years ago. Each side had two army co-operation squadrons, all equipped with the Hawker Audax, and each side also had one fighter squadron and one light bomber squadron borrowed from Air Defence of Great Britain. As might have been expected, these numbers proved insufficient.

In modern warfare no General dares to make a move until he has received reports from the air, and consequently the four Audax squadrons were kept very busy. They did excellent work both by day and by night, for after darkness parachute flares were dropped in an attempt to locate enemy formations. As an experiment this was all very well, but no body of men can work for long by night as well as by day without a loss of efficiency. So urgent, however, was the need of the Eastland commander for more information than could be provided by two squadrons of Audax machines that on one occasion he used part of a light bomber squadron for reconnaissance work. Information, of course, is always the first need, and when there are not enough reconnaissance aircraft, light bombers are quite competent to photograph an area, but diversion of specialised squadrons from their proper work is not economic. One squadron of bombers is a very exiguous supply for an army, and, supposing that the Eastland staff understood the use of aircraft in military operations, that squadron ought to have been more than fully employed on its own proper functions.

Later on, the position of Eastland became desperate, and on several occasions its Audax machines were used to attack the advancing ground troops of the opposite side. That, again, is not the proper function of an army co-operation machine. Such work should be carried out by fighters, always supposing that the latter were not urgently needed to protect their own reconnaissance machines or to attack those of the enemy, which are the two primary functions of fighters when operating with an army. In these manoeuvres the single squadron of fighters on each side was certainly too small a force to carry out all these duties. Air fighting between opposing fighters is of no interest in land manoeuvres, but to drive two squadrons of enemy reconnaissance machines out of the sky in the short time allowed would certainly be beyond the powers of one squadron of fighters. Even for the purely military purpose of attacking ground troops, the supply of fighters was too small.

It must be remembered that the Army has no lien on any fighters or bombers, and for the purpose of manoeuvres borrows squadrons from A.D.G.B. In time of war there is not the least chance that A.D.G.B. would have any squadrons to lend. Every one would be needed for air defence. When we really bring our Army up to fighting strength it will be necessary to equip it with bombers and fighters of its own, as well

as to increase the number of squadrons of reconnaissance aircraft. Five squadrons is not enough.

Mr. Chamberlain on Expansion

CHANCELLORS of the Exchequer are usually considered the greatest opponents of increases in fighting forces, and consequently the statement of Mr. Neville Chamberlain at Kelso that "The time has come when we must bring our Forces up to the minimum required for our own self respect" is doubly significant. Obviously, a further increase in our defences is intended. The Air Force has already received attention, and until the present programme of expansion is completed no further expansion may be expected. A stronger Navy is the first requirement, but the Army needs strengthening also. Apart from other things, both these Services are far below the desirable standard in their air arms.

Increases in these two air arms ought not to swell the Air Estimates, and, in fact, the Admiralty does pay the cost of the Fleet Air Arm. The Army needs more aircraft, and the War Office should find the funds for them, for at present the Army, through its paucity of air squadrons, is not in a condition to take the field.



THE FEMALE OF THE SPECIES. This fine photograph of the first production Hawker Hind light bomber being flown by Mr. M. Summers was secured by *Flight's* chief photographer from the Hart "MR," with Mr. J. S. Hindmarsh as pilot. The Hind, a development of the Hart, is fitted with the fully supercharged Kestrel V engine of 600/640 h.p. (700 h.p. for take-off) and does nearly 200 m.p.h. with full military load at 14,000 ft. Note the Demon-type rear cockpit and the tail wheel.

The Outlook

A Running Commentary on Air Topics

Word of Warning

MANY aircraft factories are full to capacity with orders for military aircraft. Some have had to put aside civil types in order to take on the military work. Some of the orders are actually for militarised versions of what were previously very promising civil types.

All this is very nice and profitable for the shareholders of the factories, but it should be borne in mind that in a year—or two, or more—when those military orders are filled and no more seem to be forthcoming, the threads of civil technical development will have to be picked up again. By that time other countries will be ahead again, and once more our civil aeroplanes will be in danger of losing foreign markets.

Up to a few months ago things were beginning to look really bright in the matter of fast transport types, and the stigma of having the Press of the world proclaiming foreign aeroplanes as being ahead of ours could no longer be laid at our door. Then came this R.A.F. expansion, and the Air Ministry gave orders for the new types in military guise. Civil work on these types has had to be stopped, and unless those factories can find it possible to carry on development work while they are fulfilling the Air Ministry orders they are likely to find themselves in difficulties in the future.

Making Hay

ALMOST daily we hear of companies which have acquired licences to build foreign aero engines in this country. The latest is the Alvis Company, of car fame, which, it is understood, is to manufacture Gnome Rhone engines.

It is true that our own engine factories are pretty well full up with orders for the Air Ministry, and it seems fairly certain that any concern which could prove that it was able to build engines of proved worth would stand a good chance of obtaining orders. A new engine takes anything up to five years to develop before it can be said "to have the bugs out of it"; therefore, anyone who wishes to make hay while the present sun shines would be well advised to procure the licence for an engine with a performance about which there is no doubt, so that there will be no development work to do.

Faded Laurels

IT has been proved often enough that laurel wreaths bestowed in profusion upon a victor are likely to go to his head in more than one sense, and, in doing so, to obscure his vision.

By the time Great Britain had pushed aside the trinity of trophies—for speed, height and distance—which adorned the national brow early in 1933, she found that a Continental aeroplane had flown farther, another faster, and a third higher than her champions. Fresh, green laurels were being flourished in France and Italy.

Now there is a vigorous rustle among the withered leaves. Things are about to happen.

Two potential record-breakers are being built by the Bristol-Company for the Air Ministry—an altitude machine and a long-distance type. The high-flier is a machine with wings of abundant area and with an extra-special Pegasus. The globe-trotter—a monoplane—will probably have a sleeve-valve engine with an abnormally low fuel consumption. It should go far, and its companion high. But where is the conqueror of the Macchi?

Testing Airports

MOST of us have, at one time or another, either flown or been flown out of an aerodrome where the air currents at the boundary, or even over the aerodrome itself, have been odd to the point of dangerous. Low-powered or heavily loaded aeroplanes are, of course, particularly susceptible to such currents, and airport owners or managers might reasonably carry out a series of tests in such circumstances, and some form of air-current plan might then be pinned up on the notice-board for the benefit of strangers.

One must congratulate the Wellington (New Zealand) authorities on their originality in actually making wind-tunnel tests of a model of the Rongotai airport, where such undesirable characteristics are particularly noticeable. The idea is a novel one, but the experiments, which are described on page 343, have brought out the sources of the trouble, and various modifications to the surrounding landscape are being made wherever possible or necessary.

Instrument-flying Training

ONE of the problems which executives of air lines have to face to-day is the provision of means whereby junior pilots can be trained in order to ensure a steady supply of fully qualified men. Generally speaking, both in regard to Imperial Airways and to our internal lines, we have arrived at the stage where the expansion is so rapid that the supply of pilots does not meet the demand. In the United States each line has a scheme whereby the company trains its own pilots. Promising material is taken from the flying schools, and the subsequent discipline and advanced flying training arranged for by the company itself. One of the most important sides of the training is that of instrument flying, and many keep a cabin machine for this purpose.

So far in England we have almost entirely trained our commercial pilots in instrument flying in open-cockpit machines. Elsewhere in our pages this week there is an announcement of the first cabin machine which has been specifically arranged for this purpose. There is little doubt that pilots whose work is ultimately to be on regular scheduled air lines can be far better trained in an enclosed cockpit.

Fog Safety

IN the course of any animated discussion concerning the need for and development of reliable blind-landing equipment, at least one of the participants is sure to claim that controlled stall and undercarriages with an adequate movement will solve all the problems.

Admittedly, development on these lines would help, but the man who so argues is losing sight of the fact that the stalling speed of a usefully fast machine is not likely to be much lower than 60 m.p.h. Even at 50 m.p.h.—combined with a sinking speed of, perhaps, 10 m.p.h.—the amount of damage caused by or to an obstruction would be terrific. Furthermore, an aeroplane travelling at such comparatively low speeds still covers a lot of ground in a short space of time.

It appears to be far more likely that a photo-electric system will put the whole radio system out of date just when a very great deal of money has been spent in equipping all the major airports with short-wave beacons and all the aeroplanes with complementary instruments. That is a risk which must be taken. The railway companies did not hold up their signalling systems in the last century in case improved automatic systems might be invented.

R.A.F. UNITS VISITED**No. 810 (FLEET TORPEDO-BOMBER)**

By MAJOR F. A. de V. ROBERTSON, V.D.



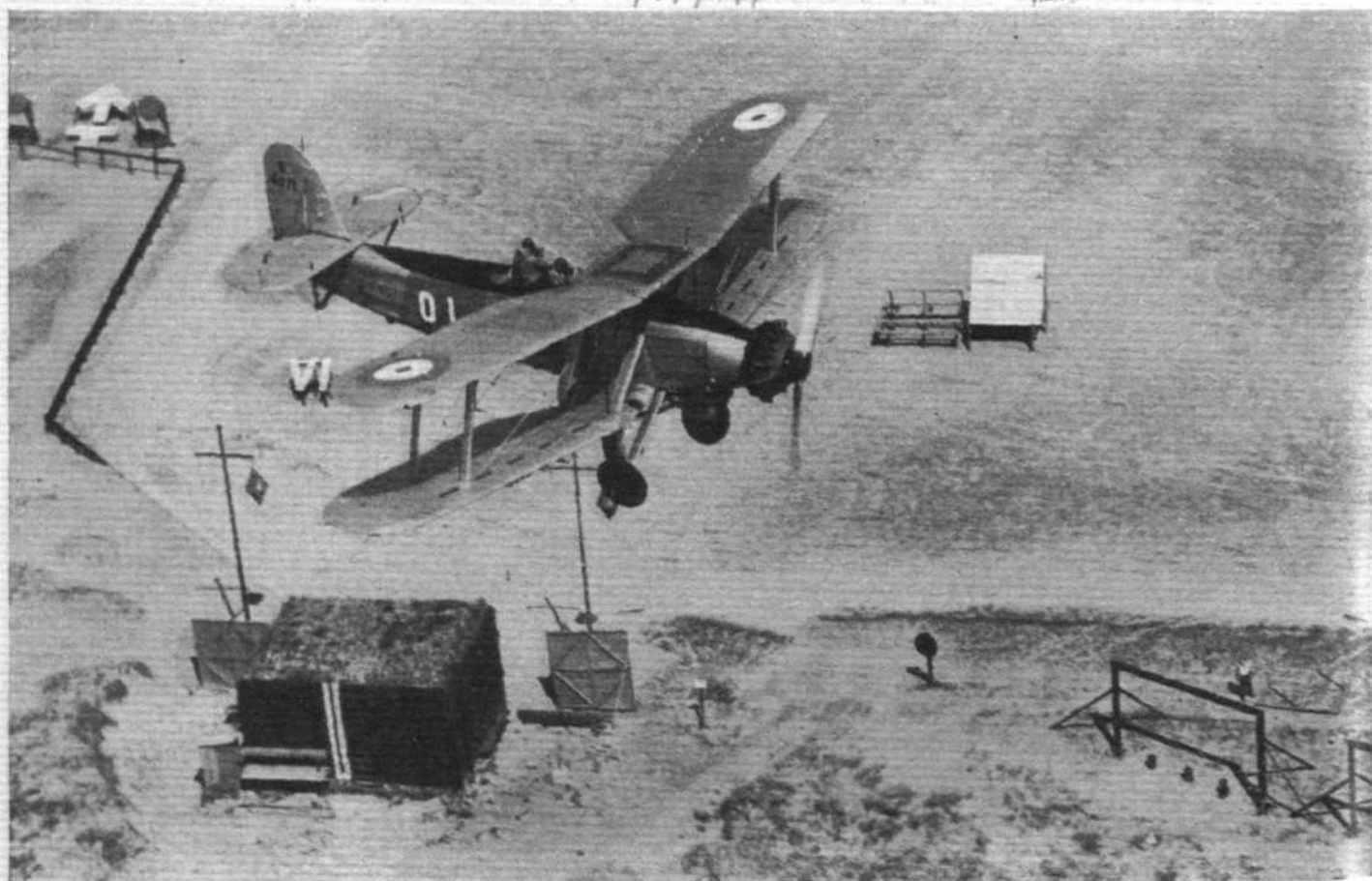
DESPITE treaties and agreements of Washington, London, or Timbuctoo, Britain remains the foremost naval nation of the world. Yet it is an acknowledged fact that to the ordinary landsman, in the street or elsewhere, the Royal Navy is all but a sealed book. Perhaps the R.A.F. almost shares that distinction, despite the efforts of *Flight* to spread some information about the Air Force alphabet. Even inside the Air Force the naval side, that is to say the Fleet Air Arm, lives in something of the mystery which to the landsman seems to envelop the Senior Service. By dint of study one may gather quite an amount of information about A.D.G.B., army co-operation, coast defence, training, and so on, and yet find that the Fleet Air Arm eludes one. Its squadrons and flights work in or on three elements, and it is not every day that one can run one of them to ground. Consequently, when a Fleet Torpedo-Bomber squadron can be cornered at an Armament Training Camp, and when the Air Ministry kindly gives permission to beard it in its den, the opportunity is not to be missed.

The visit in question, to North Coates Fitties, meant tearing oneself away from the neighbourhood of Mildenhall and Duxford at a time when all that neighbourhood was agog with preparations for the King's review of the Royal Air Force, but the choice was made, and in the end it is believed that *Flight's* readers were not left uninformed about any notable feature of the review because



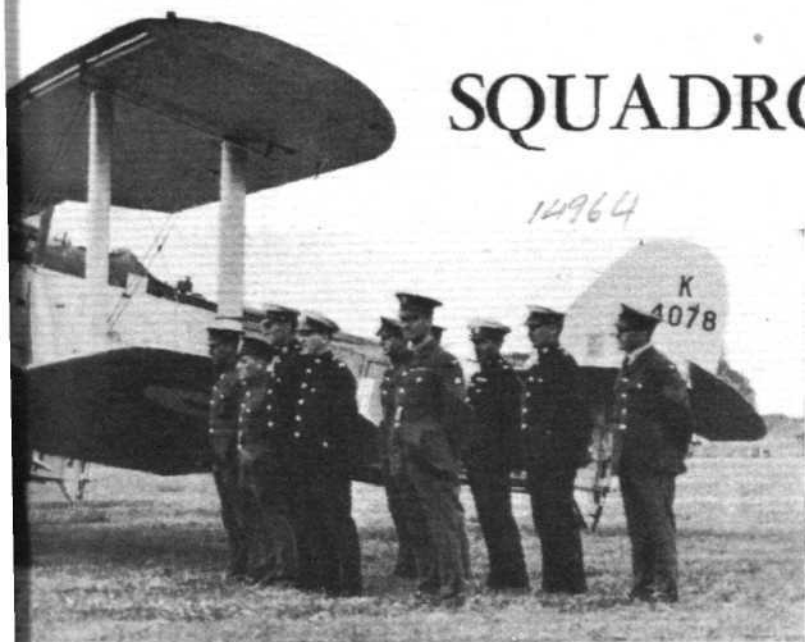
of our excursion from Suffolk into Lincolnshire. North Coates Fitties is a spot as weird as its name, and it takes some finding, especially as the roads in that part of Lincolnshire are composed mainly of right-angled bends; but difficulties were all surmounted, and we duly arrived at the appointed time.

In the eighteen months since we had last visited that spot, the *bessoneaux* hangars have given place to permanent sheds, and something has been done to the once glutinous tarmac so as to make it capable of supporting a tail skid. The camp is destined to assume still greater dignity under the scheme for expanding the Royal Air



A Blackburn Baffin (Bristol Pegasus engine) practising air firing with the rear gun at a target on the sands at North Coates Fitties. (*Flight* photograph.)

SQUADRON



units except the fleet fighters will be able to reconnoitre, to spot for the guns, to bomb, and drop torpedoes. Even in the fleet fighter squadrons the Hawker Ospreys are of the fighter-reconnaissance class.

No. 810 Squadron had not brought its torpedoes or their fittings to the Armament Training Camp, as there they were concerned only with bombs and machine guns. None the less, they are very interested in torpedo tactics, and are strong believers in the power of their main weapon when the tactics of using it are intelligently drawn up and skilfully applied. The squadron has twelve first-line machines, and is organised in two flights of six machines each. The pilots believe in that arrangement for delivering a torpedo attack on, say, a moving warship. Surprise is the great thing to aim at, and a flight of six machines is a convenient unit for one leader to handle, and also has plenty of striking power. At the same time, numbers are a very good thing in a torpedo attack.

Torpedoes may be dropped from a height of twenty-five feet above the water, and they are fastened underneath the fuselage of the machine at an angle, so that when the machine is flown level the torpedo takes the water rather nose first, and is less likely to be damaged than if it fell with what divers call a "belly flopper." Naturally



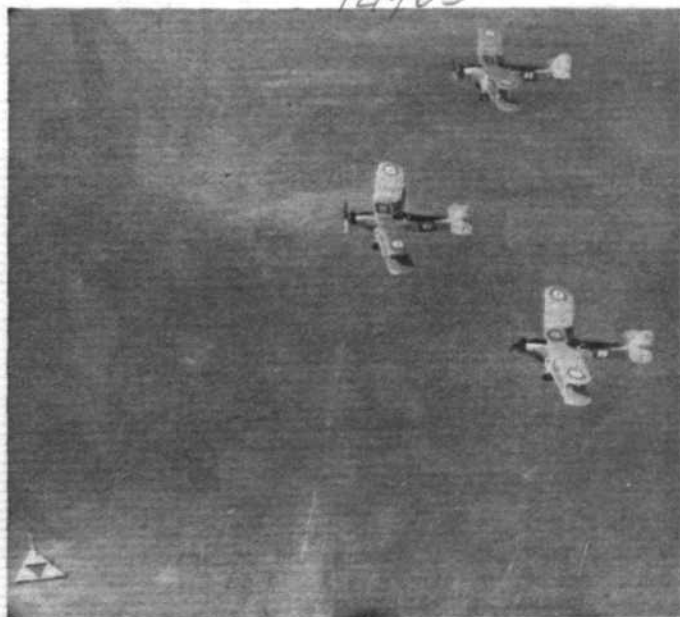
The top picture shows a line-up of the Baffins of No. 810 (F.T.B.) Squadron together with their crews and all other ranks. The uniforms of Royal Navy, Royal Marines, and Royal Air Force make a curious contrast.

The centre picture on this page shows a Baffin pilot diving at a ground target and firing his front gun.

In the bottom picture can be seen a flight of No. 810 Squadron about to bomb a target on the sands at North Coates Fitties. (Flight photographs.)

Force. Our interest on this occasion was not the station but No. 810 (Fleet Torpedo-Bomber) Squadron, which was there to do its annual course of bombing and aerial gunnery. The squadron made us very welcome (and so did the C.O. of the camp) and our visit was thoroughly enjoyable as well as extremely interesting.

It is only two years since the F.A.A. was organised into squadrons for work on aircraft carriers. Previously the organisation was in flights, and flights still persist for service on cruisers and capital ships which carry catapult floatplanes. No. 810 (F.T.B.) Squadron was formed in May, 1933, out of Nos. 463 and 464 (F.T.B.) Flights, both of which had been flying the Blackburn Dart. The squadron retained some of the Darts, and six Ripons were added to them, until in August, 1934, a complete re-equipment with Blackburn Baffins with Bristol 565 h.p. Pegasus engines took place. Some of the Baffins are actually converted Ripons, and the more powerful engine has greatly improved their performance. The squadron hopes, however, soon to get either the Blackburn Shark or the Fairey Swordfish, both of which represent the new class of torpedo-spotter-reconnaissance machines. Then, it seems probable that the distinction between torpedo-bomber and spotter-reconnaissance squadrons will tend to disappear, and all



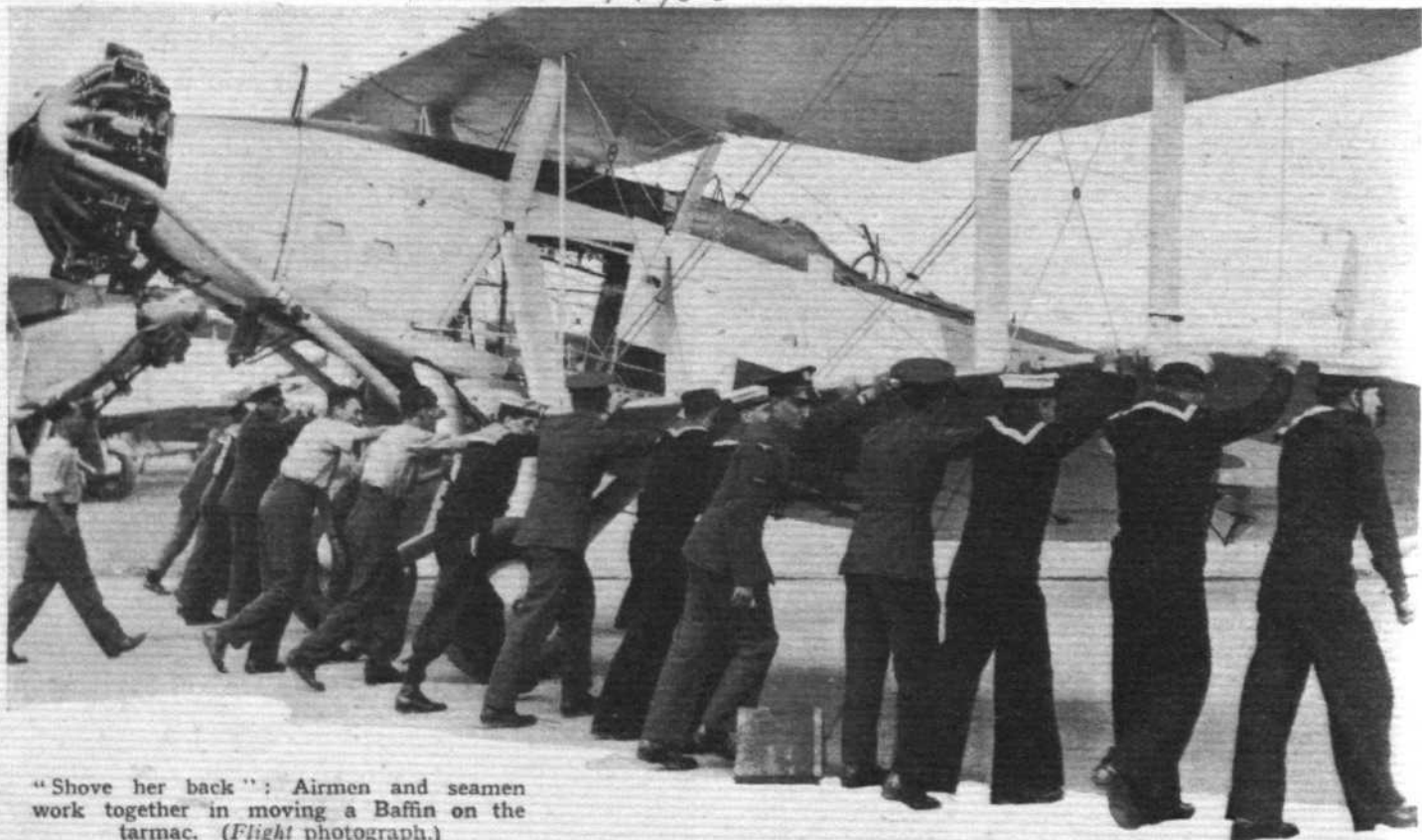


A group of the officers of No. 810 (F.T.B.) Squadron. The stalwart figure in the centre is the commanding officer, Sqn. Ldr. G. H. Boyce, A.F.C. Again there is a happy blend of Air Force blue, Navy blue, and the khaki service uniform of a Marine officer, the last-named with Sam Browne belt. (*Flight* photograph)

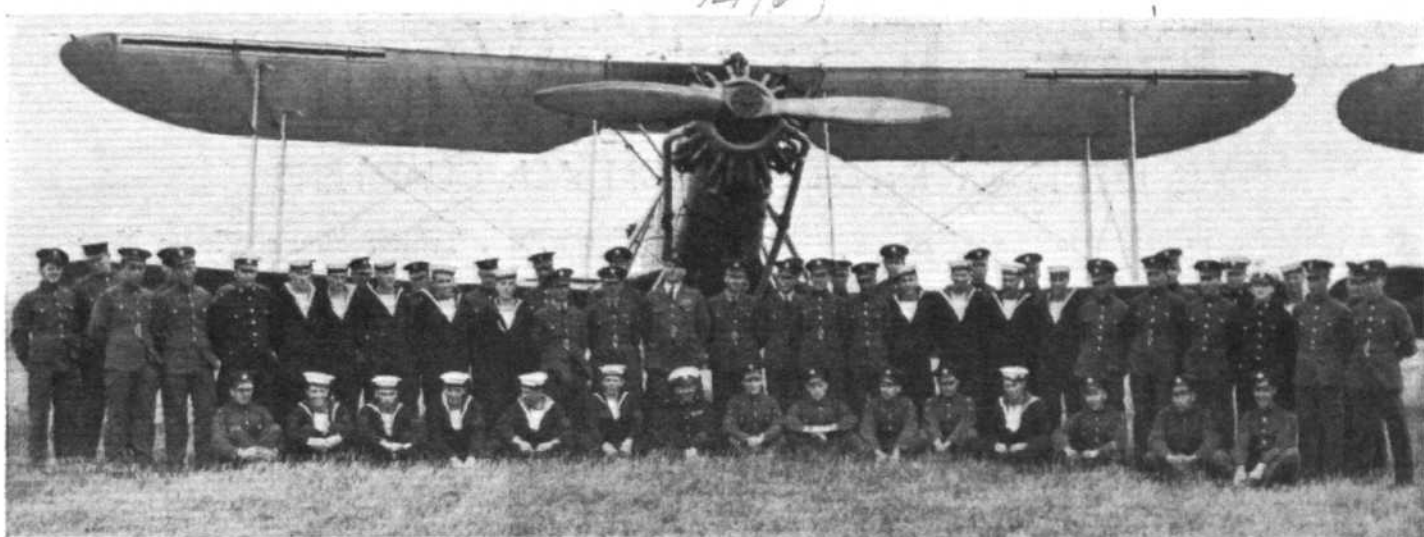
the pilot does not want to fly level for longer than is necessary to take aim and release his torpedo, for straight level flight offers the easiest target to the anti-aircraft gunners on the ship. Once the torpedo is dropped, the pilot will clear out of range with all the speed he may.

In personnel a Fleet Air Arm Squadron is a strangely composite affair such as could only be conceived in the British Services. Officers and men are drawn from three Services, the Royal Navy, the Royal Marines and the Royal Air Force. The commanding officer may belong to any one of those three Services. Those of the pilots who are officers of the R.N. or R.M. temporarily hold commissions in the Royal Air Force, but wear their own

uniforms with "wings" on the cuff or breast. The R.M. officers wear khaki uniform for flying. Promotion is a complicated affair for the R.N. and R.M. officers, as it depends partly on the Admiralty and partly on the Air Ministry. They first join the Fleet Air Arm for a period of four years. Then they return to general service for two to two and a half years, and during that time do twelve hours flying a year to keep their hands in. During periods of general naval service, an officer may be promoted by the Air Ministry. A lieutenant, R.N., of from four to six and a half years' service in that rank is in the zone for promotion to flight lieutenant, R.A.F., and if he is not so promoted by the Air Ministry while in that



"Shove her back": Airmen and seamen work together in moving a Baffin on the tarmac. (*Flight* photograph.)



Officers, airmen, seamen, and Marines of No. 810 (F.T.B.) Squadron. (Flight photograph.)

zone, he will probably revert permanently to general service in the Navy. The zone for promotion to squadron leader, R.A.F., is from two and a half to five and a half years as lieutenant commander, R.N., and again if the Air Ministry does not so promote him during that time he will probably bid a final farewell to the Fleet Air Arm.

On aircraft carriers the R.N. pilots act as ship's officers, though they take fewer watches than do other naval officers. The R.A.F. officers naturally cannot take watches, as they are not competent to be in charge of one of His Majesty's ships. The observers in the two-seater and three-seated aircraft are all naval officers who do not hold commissions from the Air Ministry, and they are purely ship's officers on the same footing as torpedo officers, gunnery officers, etc. They belong to the ship rather than to the squadron, though as a matter of practice it is best for them usually to work with one particular squadron.

When a squadron disembarks and is stationed at one of the shore stations under the Coastal Area of the R.A.F., usually two observers go ashore with it to keep an eye on the wireless apparatus and do any navigating which may

be needed. Of course, they have to come temporarily under the command of the Coastal Area, though the position is anomalous. All the officers being British, the system works.

One cannot visit such a squadron as No. 810 without getting the impression that to all of them the uniform does not matter, and it is the squadron which counts. Dark blue, dull blue, or khaki, they are all working together as one squadron, and, of course, the best squadrons are very happy families.

The same spirit obviously obtained among the other ranks. The aircraftmen, naturally, all belong to the R.A.F., the Navy and Marines providing aircrafthands. The telegraphist air gunners are all naval telegraphists.

No. 810 (F.T.-B.) Squadron belongs to the carrier H.M.S. *Courageous* with the Home Fleet. At the Naval Review at Spithead, this squadron led the fly-past of Fleet Air Arm Squadrons, taking off from Gosport aerodrome, while the flights of floatplanes started from Calshot. The fly-past was a fine spectacle, and gave a striking demonstration of the efficiency of our small but excellent Fleet Air Arm.

UNLUCKY AGAIN

EVERYBODY will sympathise with Mr. Tom Campbell Black and his co-pilot Mr. J. G. McArthur on the second slice of ill-luck which they have experienced in connection with their Cape Town-and-back record attempt. At the same time, they must be congratulated on a very fortunate escape.

It will be remembered that in the middle of last month they set out in Mr. Cyril Nicholson's D.H. Comet *Boomerang*, but were forced to return after experiencing a shortage of oil due to a curious error in the making of the dip-sticks of the oil tanks.

Last Saturday they made a renewed attempt. Weather reports proving favourable, they left Hatfield aerodrome at 4 p.m., the Comet making a remarkably short and clean take-off in spite of its heavy fuel load and an almost entire absence of wind.

They flew non-stop to Cairo, which they reached in 11 hr. 9 min.—bettering their previous time—then refuelled before taking off for Kisumu, Kenya. They were last seen flying over Wadi Halfa, then nothing more was heard of them for twenty hours, and a good deal of anxiety was felt. It was not relieved until they suddenly and surprisingly appeared at 2 p.m. on Monday at Kubushia, near Khartoum, riding camels. It was then learned that the Comet had crashed and caught fire in the desert 100 miles north of Khartoum, and that the crew had escaped by parachute.

At the time of going to press the cause of the accident is not known, but, whatever happened, Black and McArthur must have exercised considerable resource in extricating themselves from the narrow, roofed-over cockpit of the Comet in order to make use of their Irvin parachutes.

Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in the list.

Sept. 28. R.F.C. Association Reunion, Holborn Restaurant, London.

Oct. 12-28. International Aircraft Exhibition, Milan.

Oct. 21. R.Ae.S. Lecture: "Piloting Commercial Aircraft," By Maj. H. G. Brackley, 6 p.m., Institution of Electrical Engineers.

Nov. 4. R.Ae.S. Lecture: "The Prevention of Ice Accretion," by B. Lockspeiser, 6 p.m., Institution of Electrical Engineers.

Nov. 18. R.Ae.S. Lecture: "Cooling Problems, with Particular Reference to the Work of the 24 ft. R.A.E. Tunnel," by Dr. G. P. Douglas, 6 p.m., Institution of Electrical Engineers.

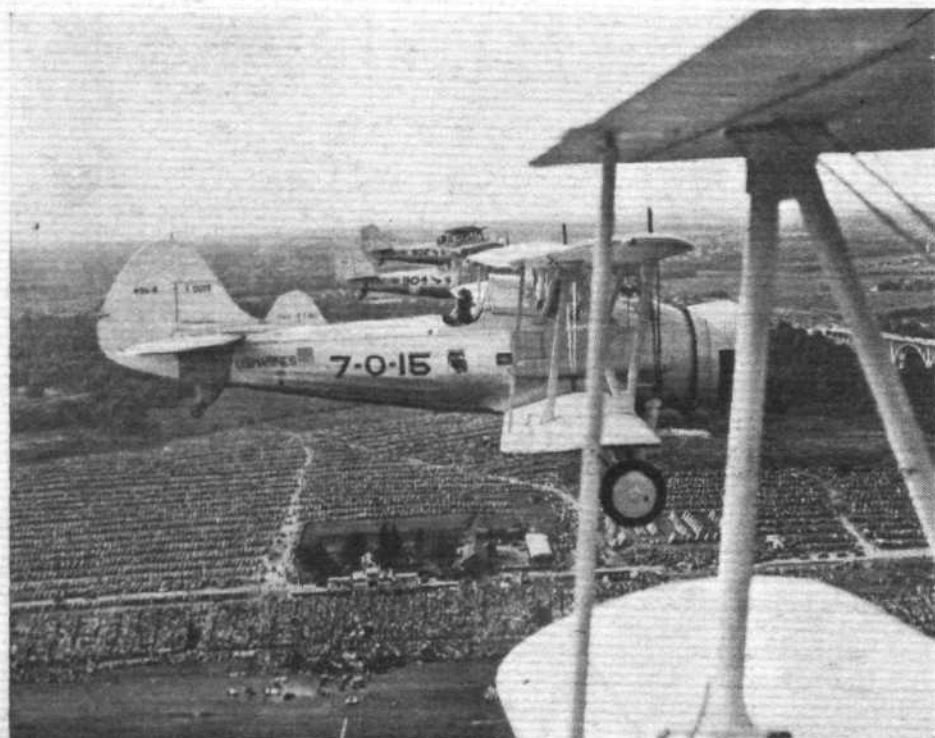
Nov. 29. Yorkshire Aeroplane Club Annual Ball, Hotel Majestic, Harrogate.

Dec. 2. R.Ae.S. Lecture: "Undercarriage Design," by G. H. Dowty, 6 p.m., Institution of Electrical Engineers.

Dec. 16. R.Ae.S. Lecture: "Wireless and its Application to Commercial Aviation," by Capt. J. M. Furniva, 6 p.m., Institution of Electrical Engineers.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS



A WAY THEY HAVE IN THE STATES. Vought Corsairs (of two types) flying over Cleveland, Ohio, the scene of the 1935 National Air Races. The car park speaks volumes for the enthusiasm of the American public for really fast air racing.

A Century—Not Out

Graf Zeppelin—undoubtedly the most successful lighter-than-air craft ever built—has made her one hundredth crossing of the Atlantic.

Poland Wins the Gordon Bennett

First and second places in the Gordon Bennett Cup Race were gained by Polish balloons. *Polonia*, the winner, piloted by Capt. Burzynski, landed about forty miles North of Stalingrad after having been in the air for sixty hours and having covered about 990 miles.

Round from Mexico

The seaplane (believed to be a Beechcraft on floats) in which Mr. Harold Farquhar and Herr Fritz Biehler are making a flight round the world from Mexico, reached Harbin on September 19. Mr. Farquhar, who is the First Secretary of the British Legation in Mexico City, states that the flight across Siberia would have been impossible without Soviet assistance.

Major Brackley to Lecture

The first Royal Aeronautical Society Lecture of the coming season takes place on October 21, when Maj. H. G. Brackley, D.S.O., D.F.C., F.R.G.S., will read a paper on "Piloting Commercial Aircraft." The venue will be the Institution of Electrical Engineers, Victoria Embankment, London, W.C.2, and the time 6 p.m. Non-members will be admitted only on tickets obtained through membe—

This Work Needs Grit

The Royal Air Force in Palestine is co-operating with the physics department of the Hebrew University to measure the effect of a heat wave upon the amount of sand particles in the atmosphere.



ON THEIR MARKS. The scene at Warsaw before the start of the Gordon Bennett balloon race which was won, this year, as last, by Poland. The winner covered 990 miles.

Trinity House—Please Note

A "small ad." in an American aeronautical contemporary reads: "Wanted, two-place lightship."

Eldorgiro

A wireless-equipped autogiro is exploring the desert near Kalgoorlie, Australia, in search of new gold fields.

Towed Tankage

A Soviet military machine has completed a 900-mile flight, during which it refuelled from a glider which it was towing.

Adopted

An order has been placed by the Air Ministry with the Vickers company for a number of general-purpose monoplanes, doubtless of the type which appeared at the S.B.A.C. display this year. A single 690 h.p. Pegasus III was fitted to the prototype, but presumably the production machines will have later engines.

Light on a Dark Horse

The monoplane with which the American pilot Howard Hughes unofficially broke the landplane speed record and which was illustrated in *Flight* of September 12 has a span of 25 ft.—giving 140 sq. ft. of wing area—and is fitted with a fourteen-cylinder Twin Wasp Junior, boosted to give 1,000 h.p. Wind tunnel tests show that the machine is capable, theoretically, of 365 m.p.h.

Shooting Themselves

"MR" and "SE," the Hart and Fury owned by the Hawker Company, are being used in the making of the new H. G. Wells film. A camera mounting has been fixed up on the fuselage of the Hart, and the Fury carries another camera in a special fairing beneath its lower starboard plane. Pointing inwards, this camera takes a picture of a portion of the nose and the undercarriage, which thus forms a "frame" for the views of land and cloudscapes seen during aerobatics.

Twenty-five Years Ago

(From "Flight" of September 24, 1910.)

"Varied success attended the tests which were made last week by batteries of the Royal Garrison Artillery and the Royal Field Artillery in firing at dummy aeroplanes and airships towed by H.M.S. *Adventure* off Plymouth. Although a good deal of valuable data was obtained the gunners were not conspicuously successful in finding their marks. Dummy aeroplanes and airships were suspended from large kites."

THE AERONCA



DEMONSTRATED

Side-by-side-seater Ultra-light Monoplane to be Manufactured in This Country

THE proverb concerning the ill wind was categorically applicable to the demonstration of the Aeronca at Hanworth last Thursday. Knowing that the wind was gusting up to 40 m.p.h. very few of the guests of Light Aircraft, Ltd., the company which is to build the English version, believed that they would see the machine even outside the hangar doors.

When, therefore, Messrs. Wood and Hill proceeded to taxi out and take off with the two demonstration Aeroncas it was obvious that, in the hands of experienced pilots at least, these ultra-light machines are not necessarily fine-weather playthings. Each remained absolutely stationary, or even moved backwards relative to the ground, during the climb at about 40 m.p.h., so there was no doubt about the wind speed. Only after several flights, including two with passengers, had been made, did Mr. B. Brady announce that "they had done enough for glory."

Actually, the two Aeroncas at Hanworth—which were, incidentally, very well finished indeed—had been brought over and assembled in this country, but all future models will be manufactured here, and J. A. Prestwich and Co. are building the transverse-twin engine to the same design but arranged with dual ignition. The type has been used extensively both for school and other purposes during the past few years in Canada and the United States, so there should be no doubt about its ability to stand up to hard work.

It is, of course, a high-wing wire-braced cabin monoplane carrying two people seated side by side. Of mixed construction, the fuselage and tail unit are of welded steel tube, while the wing spars and ribs are of spruce with, interestingly enough, pressed duralumin ailerons. The undercarriage is simple enough; the short oleo legs are inside the fuselage, and the steel half-axes carry air wheels and brakes for manoeuvring on the ground.

The view from the interior of the cabin is good and there is plenty of light, transparent panels being arranged in the wing roof. A normal array of instruments is provided with a directly operated A.S.I. on the starboard wing bracing.

The opposed twin air-cooled engine is

How the Aeronca may be man-handled. The machines are seen in front of the new Aircraft Exchange and Mart hangar at Hanworth. (*Flight* photograph.)



The "nasal" layout of the Aeronca is well shown in this photograph. The exhaust-warmed intake arrangements are noteworthy. (*Flight* photographs.)

of 1,860 c.c. capacity and has vertical overhead valves operated by enclosed push-rods through roller tappets. Its normal output is 38 b.h.p. at 2,400 r.p.m.

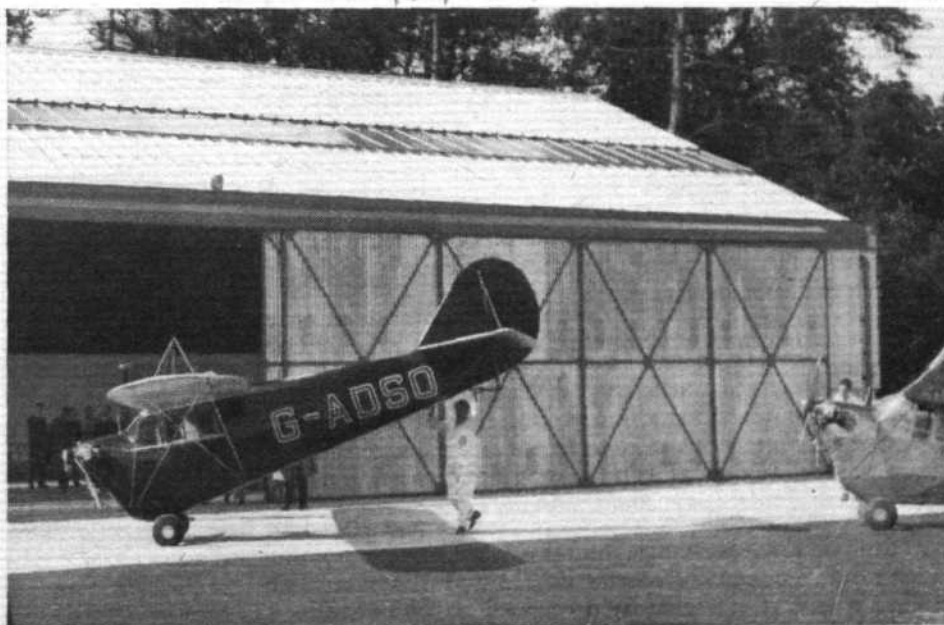
Some of the more interesting figures from the prospective owner's point of view are given below:—

Span, 35 ft.; span (with wings removed), 5 ft.; length, 20 ft.; height, 7 ft. 10 in.; all-up weight, 1,066 lb.; useful load, 437 lb.; wing loading, 7.06 lb./sq. ft.; power loading, 25 lb./h.p.; maximum speed, 95 m.p.h.; cruising speed, 87 m.p.h.; landing speed, 33 m.p.h.; initial climb, 450 ft./m.m.; absolute ceiling, 12,000 ft.; cruising range, 305 miles; fuel consumption at cruising speed, 28 m.p.h.; price (with full equipment), £295; makers: Light Aircraft, Ltd., 7, Park Lane, London, W.

Another "Simplified" Aeroplane

THE Weick W-1, which was among those machines ordered by the U.S. Bureau of Air Commerce for experiments in simplified control, is now at the Langley Memorial Laboratory.

This machine, which is of the pusher type and, generally speaking, resembles the Hammond Y already described and illustrated in *Flight*, has a combination of slot and aileron intended to obviate the need for a rudder, as well as flaps and a three-wheeled "safety" undercarriage.





Private Flying

Topics of the Day

Homing

MANY of the people one meets appear to be mildly cynical about the value of the radio homing business and I was very glad, last week-end, to have a chance of seeing it in action over a longish cross-country flight with a sparsity of adequate landmarks. The machine was, of course, the Jubilee Monospar, on which an R.T.E. homing device is standard equipment.

Returning from the Cardiff "do" last Sunday it was necessary to call at Hatfield to drop a suitcase, and, as our maps covered only the direct route to Heston, it appeared to be, in every way, a heaven-sent opportunity to try out the system under service conditions.

In one way we were extremely fortunate, as Brookman's Park radio station is only a few miles from Hatfield and, after setting an approximate compass course, we tuned in to London Regional over the Bristol Channel. Somewhere beyond Bristol I found that we were some twenty degrees off our calculated course due to an error in tuning, but, apart from that momentary lapse, we simply hung on to the homing needle, which appeared to be at least as sensitive as the normal turn indicator.

A Valuable Adjunct

NEAR Cricklade we flew off our strip map and depended thereafter on the homing equipment and our ability to pick up obvious landmarks towards the end of the journey. Abingdon gave an approximate time position and the sight of Radlett directly below during a storm and with the cloud base down to a thousand feet gave a final check before turning towards Hatfield. There I found a private owner who had already made one attempt to reach the Midlands.

Nobody—and least of all, one supposes, the makers—expect any pilot to depend solely on the homing device for navigation purposes, but it is rather more than a useful check on one's course and position. With it and a compass with its verge ring set to an approximately calculated course the pilot can ignore landmarks until his watch tells him that he is almost on his objective. Continuous map-reading, as a check on a compass course, is a laboured and troublesome procedure.

Needless to say, it is rarely that a radio station is as near to an aerodrome as Brookman's Park is to Hatfield, but some transmitting station should be possible for many courses and, by flying towards two selected stations it is possible to obtain what the transport people call a "fix." If one is lost and much too busy in bad weather to make complicated calculations, one can at least choose a station and fly towards it until some good landmark appears.

In the case of the R.T.E. equipment the fact that one is passing over a station is indicated by some very unaccountable movements of the needle and the fact that one has passed it is shown by a reversal of the indications for a right or left turn.

Wheel or Stick?

IT appears that practically all America's medium-sized private types have some form of rotary control for the ailerons, and I often wonder how the amateur pilots of that country—who are largely taught to fly with the normal control stick—react during their first few flying hours with the unaccustomed wheel or "spectacles."

In the case of big transport types, the pilot rarely, if ever, has need to use either steep turns or sideslips, and it is only during such manoeuvres that the "stick-conscious" pilot finds any serious problems confronting him. Not so long ago, flying a bigish machine with two engines and a wheel control, I tried making some really steep turns, and found that it was necessary to think quite hard when holding off bank and when adjusting the amount of opposite rudder to suit a sudden reversal of bank. The business of checking bumps, on the other hand, I have always found to be, perhaps, more natural with the wheel.

Unfortunately, practically every amateur drives a car for years before he takes to the air, where he learns to fly with a stick, and the combination of the various instinctive reactions which are developed tend to make wheel operation rather more difficult than it should be. However, it is quite obvious that one can learn to use anything, and a wheel is much less tiring where the loads are comparatively large.

Cleaning the Machine

EVERYBODY knows that a badly-kept machine can look very valueless indeed, and a clean machine, in any case, reflects some of the glory of the owner. The business of washing down an aeroplane is not a very pleasant one, and owners can be forgiven for handing the job over to someone else whenever possible. Nevertheless, one usually makes some handsome discoveries as the filth is removed, and owners should know how it is done.

It takes two people about an hour and a half to clean down the conventional biplane, and the job involves the use of two buckets of water, two rags for the initial washing, two rags for wiping over, a chamois leather, and a tin of soft soap. In one bucket a thin soapy mixture is made and the various areas, including struts and Raf wires, are simply washed over. The clean water and rags are then used to remove this soapy water and the whole machine is finally leathered. Some parts—such as the wing-locking arrangements and undercarriage joints—may require to be cleaned first with a brush and petrol. If the aerodrome is dirty it may be necessary to use a hose to soften the hard mud deposits on the lower surface of the wings.

Finally, a search should be made for any details which require the application of a little aluminium paint, and the engine then run for five minutes or so. **INDICATOR.**

FROM the CLUBS

Events and Activity at the Clubs and Schools

LIVERPOOL

Gales prohibited instructional flying last week, and only 1 hr. 5 min. flying was recorded.

LONDON

High winds caused the postponement of the map-reading and navigation competitions last week, but the Club hopes to hold them very soon.

The flying time for last week totalled 32 hr. 5 min.

KARACHI

During August 187 hr. 5 min. flying was logged.

Mr. A. P. le Mesurier, the Assistant Commissioner, has qualified for his "A" licence, and Messrs. Sanghavi and Altaf Ali have passed their "A" licence tests. Mr. H. T. Pathak has passed tests for his ground engineer's "A" licence.

READING

Wind and rain have handicapped flying, but Mr. Smith and Mr. Douglas Cooper qualified for their "A" licences. Mr. D. G. MacLeod went solo.

No. 18 (Bomber) Squadron from Upper Heyford has been camping on the aerodrome for two days.

Mr. and Mrs. Miles have flown to Cannes in the victorious King's Cup Falcon, and Mr. G. J. Pawson has joined as a flying instructor.

LINCOLNSHIRE

Work on the extension of the aerodrome is nearing completion, and the surface is being levelled and improved. A minimum run of 850 yards in all directions will soon be available.

Mr. W. Ross and Flt. Lt. Harstone have just returned from an aerial tour on the Continent, having visited Brussels, Cologne, Dusseldorf, Bonn, Antwerp and Le Zoute.

Nineteen hours dual and 12½ hr. solo have been recorded during the past fortnight.

CINQUE PORTS

Sgt. Cross, R.A.F., Hawkinge, took a Club machine abroad for a week-end visit to Paris, Brussels and Antwerp. Two machines and pilots represented the Club officially at the opening of the new Southend Municipal Airport. Mr. Cliff took aloft a member of the County Constabulary the other day to obtain photographs of a dangerous bend in the London-Folkestone road.

Mr. Barr and Miss Baird have passed their "A" licence tests, the former in his Klemm (Salmson), which was Mr. Leslie Cliff's mount in the Folkestone Aero Trophy Race.

Due to gales, last week's flying time amounted only to 32 hr.

REDHILL

The elements curtailed flying activities last week and the first exertions of a *Pou* were the only events of note.

CAMBRIDGE

From Sunday to Thursday last week no flying was possible.

The Monospar behaved particularly well on a recent taxi job to Calais, and did the return trip in under three hours in face of high winds.

C.A.S.C.

Twenty-four member attended Fen Ditton aerodrome on Sunday, and fourteen of them went up, putting in 5 hr. 40 min. flying in spite of rain and high wind.

Final touches have been applied to the foundations of the Corps hangar.

The log now shows well over 300 hr. flying.

SOUTH STAFFS

On Friday—the only day on which flying was possible—the aerodrome was the scene of Sir Alan Cobham's display, which included the demonstration of a *Pou*.

A successful house-warming was held on Saturday, September 14, and was followed by a motor treasure hunt and a dance.

New members are Messrs. V. R. Stammers, H. D. Webb, and C. Brown.

HESTON

Since the beginning of September, "A" licences have been gained at the Airwork School by the following people, and as a matter of interest their flying times to first solo and to qualification are given:—

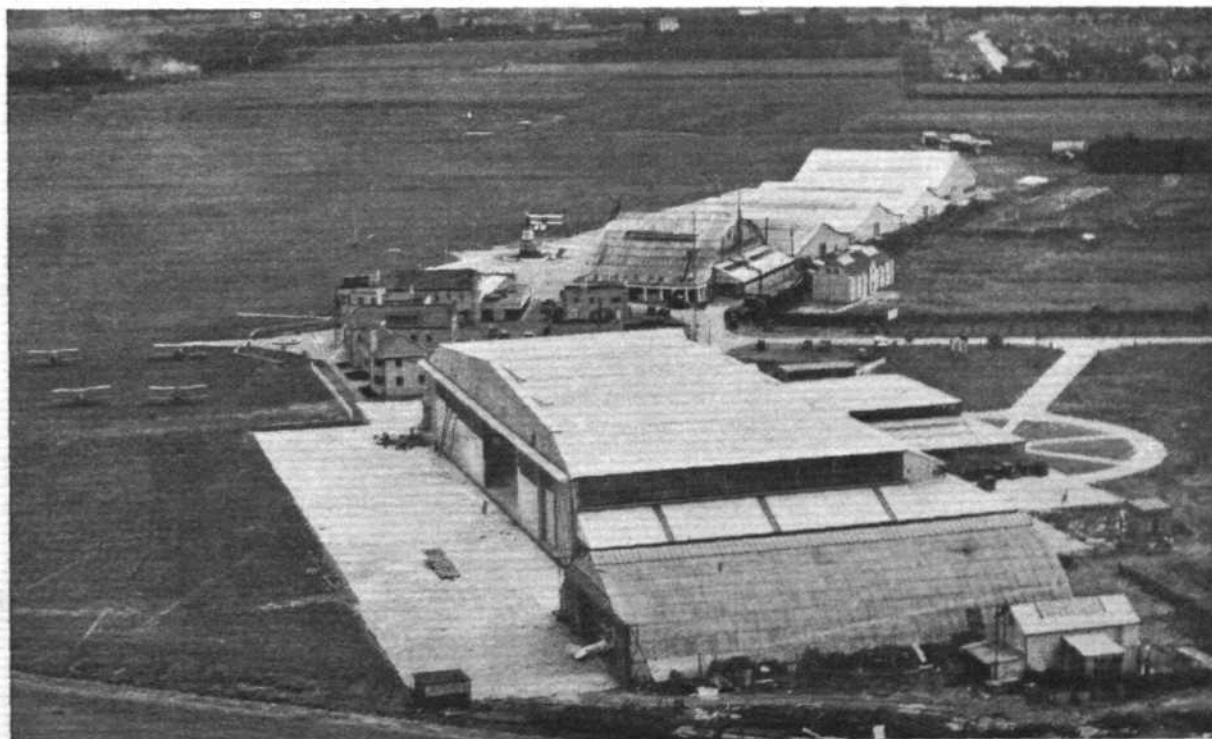
	To Solo.	To Licence.
R. Fairey	4 hr.	7 hr. 15 min.
D. W. Stanley	5 hr. 20 min.	10 hr. 40 min.
W. de Wet Mullins... ..	7 hr. 40 min.	16 hr.
R. J. Elliot	6 hr.	11 hr. 50 min.

BRISTOL

The erection of the Air Ministry radio station at Bristol airport was completed on Saturday, September 14, and it was hoped that the station would be in operation two days later. This hope was not realised, however, owing to the loss of one of the transmitting masts during last week's gale.

The Club starts its night-flying programme on October 5.

Messrs. P. E. Cadbury, A. R. Lind and J. D. Hannington have completed their "A" licence tests, and Messrs. E. S. Brookes and W. H. Hicks have become flying members.



HESTON, 1935. Rapid expansion of internal air lines must be accompanied with similar expansion in ground facilities. This view of Heston shows the enormous new hangar, which is surrounded by administrative offices. Heston now caters for a very large proportion of Britain's internal air transport as well as for the private and school flying which was its mainstay in the early days. (Flight photograph.)

Private Flying

NORFOLK AND NORWICH

Flying has been greatly handicapped by the weather, but a reasonable number of flying hours were recorded, as there are a number of new pupils. Mr. E. J. Lines and Mr. G. E. Blackburn are taking instruction, and Major Johnson Cole is renewing his licence.

HANWORTH

The demonstration of the Aeronca organised last week by Light Aeroplanes, Ltd., was well attended.

Toward the end of the successful rally of the Talbot car owners' club a machine was kept busy joy riding.

Flying times last week totalled 35 hr. 25 min.

NORTHAMPTONSHIRE

On Friday a successful dinner and dance were held in the clubhouse, and the Wakefield Trophy for the best performance of the year was presented to Mr. J. W. Tomkins. About fifty members were present.

A formation of club machines flew down for the opening of the Shoreham Airport on Saturday.

LEICESTERSHIRE

Flt. Lt. R. L. Bateman has been appointed chief instructor of Leicestershire Aero Club to succeed Flt. Lt. G. N. P. Stringer, who has become a reserve school instructor.

Mr. Bateman, who begins his duties at Braunstone on October 1, was the Club's first instructor at Desford. After leaving Desford he was engaged for some time with the Ford Motor Company as an aviation representative in Europe and was afterwards instructor to the Reading Club. After a couple of years in commercial life Mr. Bateman returned to the air this summer as a pilot in Sir Alan Cobham's team.

NEWTOWNARDS

Mr. J. C. Harris has made his first solo flight at Newtownards, and both Mr. R. Armstrong Mitchell and Mr. F. M. R. Byers have gained their "A" licences. In the four weeks ended September 13 the Ards school flew 32 hr. 45 min.

On August 23 Mr. W. M. Henning, complete with inflated life jacket and Very pistol, took off in a Cadet on his first solo cross-country flight. His somewhat spectacular appearance was accounted for by the fact that he had chosen Rentrew as his objective, and his total flying time of 2 hr. 25 min. there and back bears witness to his inherent skill as a navigator and to the quality of his instruction.

New Finance at Lympne

AN arrangement which will in no way alter the existing agreements as to membership and other facilities between the Cinque Ports Flying Club and the Brooklands group of clubs is announced from Lympne.

The present manager, Mr. W. E. Davis, has, together with Mrs. Davis, formed a company to take over the financial responsibility of the club. We gather that extensions are under consideration, but unless Mr. Davis can induce the Air Ministry to part with the aerodrome there would not appear to be an easy path ahead for the undertaking.

Run purely as a commercial aerodrome, but working in close conjunction with the Air Ministry, there should be a great future both for the club and for any commercial flying activities which may be started there. Lympne is one of the natural entries for all foreign light aircraft, whereas Imperial Airways, and other companies who go to Croydon, very seldom use Lympne—in fact, the Air Ministry outlay on this aerodrome has many times been wondered at by flying people.

Homing to Australia

WHEN C. J. Meirose takes his Percival Gull back to Australia next week he will be using the latest type of Radio Transmission Equipment homing device, such as is fitted as standard to the Monospar S.T.25. He will, of course, use the normal broadcasting stations on or near his route, which will be covered in easy stages.

Towed-Glider Requirements

AN Air Ministry Notice recently issued draws attention to new requirements in the matter of towing gliders. *Inter alia*, the Notice says that only aeroplanes specifically approved for the purpose may be used for towing; Farnborough must be satisfied that the structure has an adequate margin of strength under loads from the towing cable; and control of the machine must not be endangered when the pull from the towing cable is received at various angles.

Quick releases under the control of the pilots of both the aeroplane and the glider must be fitted.

In no circumstances may paying passengers be carried.

Another Baby

THAT most interesting little Czechoslovakian cabin monoplane, the Praga Baby, which was described in *Flight* of August 22, is to be built in this country. F. Hills and Sons, Ltd., of Trafford Park, Manchester, have obtained the licence and are to construct the machine at the old Ford body works. This firm has its headquarters at Stockton-on-Tees, and make wooden window frames on a large scale.

The managing director is in Prague at the moment and is bringing a Praga 114 back with him to this country, where it will be submitted to Martlesham for approval. Production will start in about six weeks, and deliveries should be possible in three or four months. The makers of the engine have not yet been decided upon—in the original machine it is a flat twin of 36 h.p. made by the Praga company. The price will be about £380.

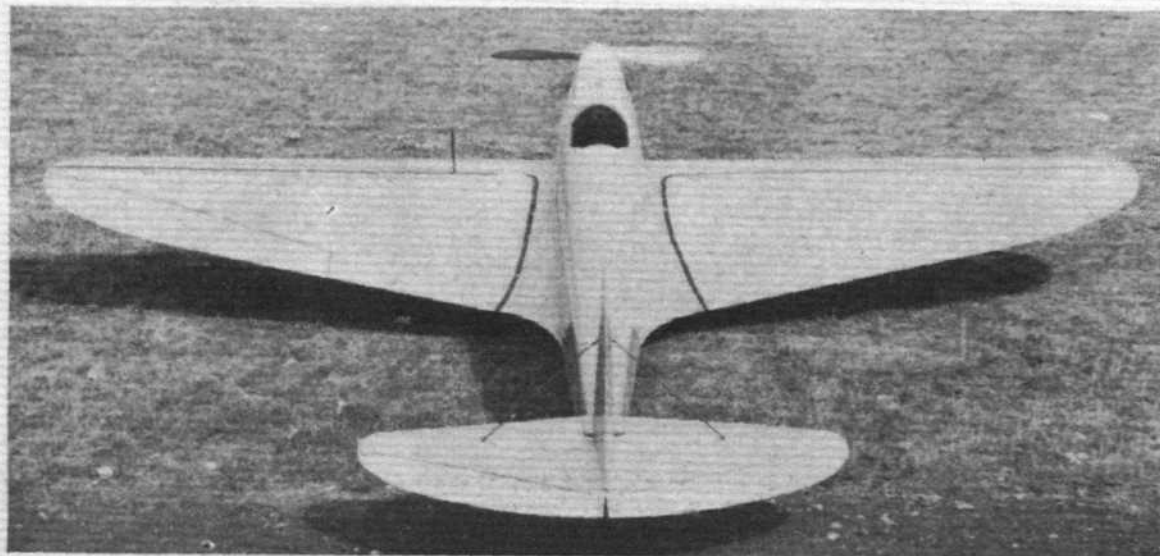
Meanwhile, the firm is busy building *Poux*, which will be sold, fitted with Scott engines (already described in *Flight*) at about £170.

The Heston "Pou"

MR. S. V. APPLEBY'S *Pou* is in the air again and is flying well. It has been repaired and modified by Mr. L. E. Baynes, of glider fame, and both appearance and performance have been greatly improved. The wing-span has been increased to 22 feet, slightly more than the usual span of the French *Poux*, and the engine bearers have been modified and covered. The lower part of the engine is now cowled. Besides reducing drag, these alterations have considerably improved its lines and general appearance, and it is understood that they will present no difficulties to the amateur constructor.

A further modification now in progress is the removal of the radiator from its present position under the wing to a faired-in mounting beneath the engine and in the nose of the fuselage, where it will set up no extra drag. A small water pump will attend to circulation processes in the new position.

Mr. Appleby made three circuits and landings on September 12, after a few preliminary straights. On the following day he took off and climbed to about 500 feet on a brief test.



THE TIPSY "S" MONOPLANE, designed by Mr. E. O. Tips of the Fairey Aviation company in Belgium, and now fitted with an Aubier et Dunne two-stroke engine, which has increased the speed to 94 m.p.h. Avions Fairey are laying down six of these machines, which will probably be fitted with the 750 c.c. Douglas engine, these, it is calculated, should give approximately the same performance.



"BRIGHTHOVING AIRPORT"

Semi-formal Opening of the Fine Shoreham Aerodrome Serving Brighton, Hove and Worthing

FEW airports have such admirable facilities as has the new Shoreham Airport which serves the interests of Brighton, Hove and Worthing—a jointly run municipal affair for which the above suggested name seems more appropriate than does that of Shoreham, because the municipality of the last-named town is not represented upon the Airport Committee.

Bordering the southern end of the airport is the Southern Railway main line, with a station actually adjoining the airport; only a little farther south—a distance which can be covered in a very few minutes' walk—and running parallel to the railway, is the main Worthing-Brighton coast road, along which motor buses run every few minutes. Across the northern boundary is the upper road between Worthing and Brighton, also carrying bus services and, finally, the river Adur forms the eastern boundary. This waterway is hardly usable in its present state by seaplanes, but at high tide it could be utilised, and there is the possibility of it being made usable in the future.

Shoreham lies immediately south of the Lancing gap through the South Downs, and even when Brighton and Worthing—we do not mention Hove because it lies so close to Brighton as to be thought by every one except its high-minded residents to be part of it—are covered with low cloud and murk it is generally possible to get through the gap.

From every point of view, therefore, Shoreham—or Brighthoving—Airport can be looked upon as one of the best entries and exits for aircraft in this country; even for air travellers going to London it offers advantages over other airports nearer that city, because, with the electrified Southern Railway, the journey from Brighton to London takes only one hour, while that from Croydon to Victoria takes forty-five minutes, to which must be added at least another 30 minutes as flying time from the coast to Croydon.

For some considerable time negotiations have been going on with a view to getting this airport opened up again—it used to be a hive of industry during the war—and last Saturday the Airport Committee, whose energetic chairman is Ald. H. Milner Black, J.P., invited the members and chief officials of the Brighton, Hove and Worthing town councils to pay an official visit. The occasion was more or less an official opening, and was marked by the arrival from Lymington of a large number of light aeroplanes in formation, while

machines owned by Olley Air Service brought up the rear.

The club which is operating at Shoreham is the latest addition to the Brooklands group, an organisation which may be called quadripenate, as it now has four wings. This Shoreham addition is the South Coast Flying Club, the others being Brooklands Flying Club, Northamptonshire Aero Club, and Cinque Ports Flying Club, and members of one are members of all four. The new club-house at Shoreham is one of the best we have seen. Already the membership has passed the hundred mark, and there is little doubt that, under the instruction of that old-timer, Mr. Cyril Pashley, the past traditions of Shoreham for having a live flying club, turning out many members, will be strongly upheld.

The purely commercial side of the airport is in the hands of Capt. Gordon P. Olley, whose firm, Olley Air Service, Ltd., will operate from there. Capt. Olley himself arrived on Saturday afternoon after a fast flight direct from Strasbourg in one of his Dragon Rapides.

The airport buildings are not quite finished, but when in order they will represent the last word in municipal facilities for commercial and club aircraft. There will be full night-landing equipment, a D/F. radio station with a direct land line to Croydon, customs and repair facilities, and large hangars capable of accommodating full-sized air liners.

There was little flying and hardly any set programme on Saturday afternoon. After tea Capt. Findlay flew the Miles Hawk M.5 for the first time and showed off its paces very prettily. Mrs. Crossley put up the cleanest aerobatic display we have ever seen by a lady pilot; she was flying a Tiger Moth, and her technique was good enough for the most

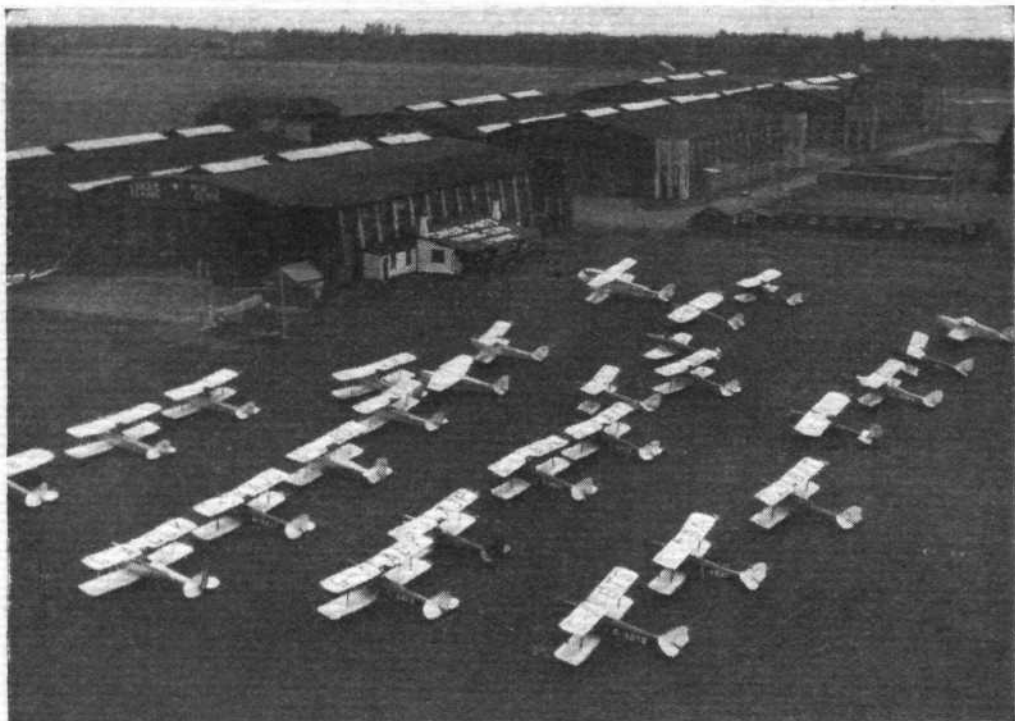


There is real dignity about the Shoreham buildings. The club formation can be seen flying over them. (Flight photograph).

The Brooklands Club machines dropped in at Lympne on their fraternal visit to Shoreham. This view of Lympne shows the new Cinque Ports Club extensions. (*Flight* photograph.)

ambitious male pilot. Towards the evening Mr. and Mrs. F. G. Miles, in the Miles Falcon (the King's Cup winner) and Flt. Lt. T. Rose, in the Miles Hawk M.5, both gave short demonstrations before leaving, the latter for Reading and the former for Paris, after making use of the recently arranged customs facilities.

As a wind-up to the event a dinner was given in the evening, at which Sir Harry Preston and Mr. J. H. Thomas were present. The former talked about his second childhood and the latter about his bygone glories; it was left to Capt. Duncan Davis, of Brooklands, to provide the necessary aeronautical touch, and to explain the importance of the occasion.



Flt. Lt. T. Rose and Capt. D. Davis (extreme left), Mr. F. G. Miles (extreme right) and Ald. H. Milner Black (chairman of the Airport Committee) in the centre, with the Mayors of Brighton, Hove and Worthing on each side of him. (*Flight* photograph.)

Eight Hundred Short

LIEUTENANT FELIX WAITKUS, Lithuanian-born but a naturalised American, last week-end flew from Floyd-Bennett Field, Long Island, U.S.A., to Ballinrobe, Co. Mayo, in about 22½ hours. He was using a Pratt and Whitney Wasp-engined Lockheed Vega, and had intended flying to Kovno, Lithuania, 800 miles farther on, but was forced down by lack of petrol. In making his landing approach too cautiously it seems that he stalled the Vega a few feet from the ground and damaged it considerably. Over the Atlantic he had experienced icing up of wings and carburetter.

This makes the twenty-fourth west-to-east crossing of the Atlantic.

Luxury Private Ownership

THREE "Club" model Lockheed Electras have been delivered to private owners in America during the past month. These machines are similar in all respects to those operated by several air lines, but are, of course, luxuriously and spaciouly appointed.

The Milan Show

IN view of the international situation, British participation in the first international aircraft exhibition at Milan now appears somewhat problematical. It is understood that a few accessory firms have signified their intention of exhibiting, but it appears unlikely that any complete machines will be shown.

It is intended to hold the show bi-annually, to alternate with the bi-annual Paris show.

Elaborate preparations have been made by the organisers, and arrangements have been made for travel by air, rail and sea at reduced rates to exhibitors and visitors. Full details are obtainable from the Secretary General, Salone Internazionale Aeronautico, Milan, via Domodossola.

The exhibition takes place from October 12 to 28.

An Indian Appointment

MR. MICHAEL ANDREW DOYLE, B.Sc., A.F.R.Ae.S., has been appointed as an aircraft inspector in the Civil Aviation Directorate of the Government of India.

Scaled-down Gliding

IT is announced that the date of the gliding contest of the Society of Model Aeronautical Engineers, recently postponed, is now October 6, the time 3.30 p.m., and the place Ivinghoe Beacon.

Pobjoyous

SPEAKING at the statutory meeting of Pobjoy Airmotors and Aircraft, Ltd., last Monday, Mr. D. R. Pobjoy, the chairman, said that the factory was already working to its maximum capacity. Imperial Airways had ordered another Scion Senior and it was expected that contracts would be received for a large quantity of machined parts to be supplied to a large R.A.F. contractor. The manufacture of the Scion aircraft was being transferred by Short Bros. to the Pobjoy works and the prospects in general were very bright.

A Third at Coventry

WORK is proceeding apace on the new aerodrome which is being constructed at Ansty, near Coventry, to accommodate a school which is being established by Air Service Training, Ltd., to train pilots for the R.A.F. Reserve and candidates for short-service commissions and N.C.O. pilotships.

It is understood that fifteen or sixteen Avro Cadets will be used. The site is half a mile from the main Coventry-Leicester road, and when it is completed—which is expected to be in January—Coventry will have three aerodromes, for Whitley is being retained, and the new municipal airport at Baginton covers a 250-acre site on high ground near Whitley.

CEREMONY at SOUTHEND

*Sir Philip Sassoon Opens the New
Airport, Situated
Only Two Miles from
the Centre of the
Borough*



Sir Philip Sassoon arrives. On his left can be seen Councillor Edwards, the Mayor of Southend, and on his right, somewhat in the background, is Councillor Weber.

It was fortunate for the hard-working organisers of the affair at Southend last week that the gale moderated a little for that particular Wednesday. Although, because of the non-arrival of sundry pilots and of the unexpected arrival of several others, it cannot be said that the programme went off according to plan, the major portion of it did so, and Sir Philip Sassoon, Under Secretary of State for Air, arrived in his own Leopard Moth for the opening ceremony.

Southend Airport has been in use for some time as the headquarters of the Southend Flying Club—since, in fact, the old and not too happily proportioned Rochford aerodrome was closed—but the official opening, which was handled on a magnificent scale, signalled the fact that it has now been licensed by the Air Ministry for all types.

While flying around as pseudo-second pilot of British Continental Airways' new D.H.86, which was the largest joy-riding machine on the aerodrome, one realised that the aerodrome is definitely near to the town it serves—it is actually about two miles from the centre—and obtained some idea of its approaches, which are excellent save on the east side where runs the L.N.E.R. and its accompanying telegraph wires. Nevertheless, the 86 was brought in from this direction, and it appeared that even in a flat calm the most exceptional aeroplane should have no need of its brakes. The runs are actually of the 800-yard order and the surface good, though the grass had been allowed to grow a trifle long—no doubt for very good reasons. In due course the area will be increased by about eighty acres.

So far some £25,000 has been spent on the aerodrome, which was, incidentally, used as a Service station during the war, and at least one com-

mercial veteran present recalled the fact that he had flown off it in those days. The control and clubhouse is at present a luxuriously arranged part of a single hangar building, but a separate administrative block will probably be erected later. To Councillor G. E. Weber must go much of the credit for the fact that Southend now has its own airport.

Welcoming the guests after the luncheon in the big hangar, the Mayor of Southend, Councillor A. T. Edwards, J.P., spoke of the future importance of Southend as a link between this country and the Continent, lying as it does more or less on the direct line to Amsterdam and Berlin, and suggested that the L.N.E.R. might be prevailed upon to build a station or a halt beside the aerodrome.

Sir Philip Sassoon, replying—and remembering, no doubt, the alternative airports which are already in existence—stressed the value and future of internal air lines, and explained that, as in the case of the railway system, the towns which are first in the field would undoubtedly score. He congratulated the borough on its wisdom and far-sightedness in responding to the appeal made by the Prince of Wales at the Mansion House early last year.



Most of the cars and a few of the aeroplanes present at the opening display. The big machine is the British Continental D.H.86 and the Autogiro has its full parking equipment in place. The future control building will probably be built on the boundary at the top of the picture. (Flight photograph.)



Capt. W. Glover, Southend's chief instructor, with Mr. "Bill" Ellison.

After luncheon the company moved out and watched Sir Philip cut the tape to declare the airport open. Capt. Glover then drove out with one of the club Cadets and the display was led off by Mr. Brie in the Autogiro, who, as usual, took every advantage of the distinctly strong breeze. Unfortunately, Mr. S. A. Thorn, who was to have flown the 636, had been delayed at Athens, but a number of unexpected or half-expected pilots of note turned up, and Mr. "Jimmy" Jeffs contrived—outside, one may say, his actual job as "officer in control of flying"—to fit them all in so that there was not a dull moment for the amassed populace inside and

outside the airport. Capt. Percival, for instance, screamed around in his usual vertical turns with the Mew Gull, and Flt. Lt. "Tommy" Rose brought the King's Cup Falcon to show people that a racing machine need not always travel quickly of necessity, or be uncomfortable. Very sensibly the organisers cancelled the promised parachute drop as the wind was much too strong.

Quite the star turn of the afternoon was an unrehearsed effort by two members of a local orchestra, who flew as passengers in a Lynx Avro flown by Capt. Phillips, who is himself quite incapable of flying straight and level when off the leash. The trumpeters made very reasonable music as they passed in front of the enclosures at a height of three feet, and even survived the ordeal of being looped more or less from ground level. Meanwhile, the major portion of the orchestra travelled luxuriously in the B.C.A. D.H.86 while gramophone records of their performance were relayed over the loud-speakers—better a little cheating than the sound that is usually transmitted from flying orchestras!

During the evening's party Capt. Glover took up quite a few people in the Short Scion belonging to Southend Flying Services, in order that they might view the illuminations, landing by means of a dim flare path and of the head light built into the nose of the Scion. All went well, and afterwards, to his unmasked surprise, he was presented with an illuminated address and a cheque for a useful sum of money for his work in saving the life of Mr. Dennis Smith before a parachute drop. The incident, it will be remembered, happened a few weeks ago! Smith's scarf became entangled and he was unconscious when Glover brought the machine down while holding him over the front cockpit.

Once again the A.A. men worked hard and well on the marshalling of both aeroplanes and cars, and one feels that Sgt. Hayward, who was in charge, deserves an all-too-infrequent word of praise. The broadcasting, too, was excellently done by Mr. E. E. Brown, of Duckhams.

The Lowe-Wylde Fund

BY last week-end the Lowe-Wylde Memorial Fund had reached a total in the region of £565. The latest list of donations is as follows:—

	£	s.	d.
Sir Philip Sassoon	...	5	5 0
Rubery Owen and Co., Ltd.	...	4	4 0
Capt. J. Laurence Pritchard	...	2	2 0
W. S. Siambridge	...	1	1 0
Major J. Stewart	...	1	1 0
Mrs. Isaac	...	1	0 0
Lewis Falk	...	1	0 0
Clement Pike	...	1	1 0
W. Lappin	...	1	1 0
R. Ashley Hall	...	2	2 0
D. H. Kennedy	...	1	1 0
J. Russell Knowles	...	1	1 0
J. H. Veasey	...	1	1 0
Albert Braid	...	1	0 0
A. F. Goodall	...	10	0

Donations should be sent to Mr. E. C. Gordon England at the London Air Park, Feltham, Middlesex.

In Miniature

ANYONE who wishes to see what enormous strides have been made in the art of model-aircraft building during the last few years would do well to go to the Model Engineer Exhibition now being held at the Royal Horticultural Hall, Westminster, London, S.W.1, and continuing until next Saturday.

Practically all the rubber- and petrol-driven models which have distinguished themselves in the competitions of the leading clubs during the past season are on show; in addition, there are a number of new models in a partially completed state, many of which show how closely full-size constructional methods are followed in these days of that remarkable material balsa wood.

One stand is particularly noteworthy for the reason that it forms an official exhibit of the Royal Air Force, being designed to draw the attention of the many youthful enthusiasts at the exhibition to the openings which the R.A.F. now provides to young men of a mechanical turn of mind. Arranged by the School of Technical Training at Halton, with the co-operation of Farnborough, the stand contains a large number of exhibits of great interest, including a gun ring, bomb racks and sights, a parachute, sectioned magnetos and carburettors, models of various types of R.A.F. machines, and some fine examples of metal work by Halton apprentices. Even on the opening day it was obvious that the amount of

interest aroused had justified the inclusion of this exhibit.

In the models page of *Flight* next week it is hoped to deal with the model aircraft exhibits in greater detail.

Pouem

WITH all due respect and apology to M. Mignet and his *Pou-du-Ciel* disciples, the following effort by a reader is too good to miss, and deserves a niche in aeronautical history:—

THE FLEA

*Flying Flea, of birth obscure,
Odd, plebian cynosure,
What immortal hand or eye
Framed thy fearful symmetry?*

*Eagles, Gulls and Hawks assert
Truly bird thou never wert.
Thy parentage was distant far
From D.H. Lepidoptera.*

*Aviation's Natural History
Cannot classify the mystery.
Bulldogs, Widgeons, Swordfish, Snipe,
Shun thy parasitic type.*

*Abhorrent freak to minds mechanic;
To pilots, witch's broom satanic:
The Ministry can scarce divine
If aerostat or aerodyne.*

*Yet Henri Mignet floats serene
In his penny slot machine.
"See, my insect makes," he said,
"Many people scratch their head."*

*Twinkle, little flittermouse,
Flying flea, celestial louse,
Up above the world so high
Like a tea tray in the sky.*

*Thy curious broods may beautify
A Disney Silly Symphony.
But will the State expressly ban
The common louse for common man?*

ARIEL

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS



AIR MINISTRY ANNOUNCEMENTS



DEADLIER THAN THE MALE. Another remarkable "close-up" of the Hawker Hind. (See p. 324.) A very large batch of these machines is being produced by the Hawker Company. The fully supercharged Kestrel V will come as a treat to pilots who have been flying Harts with naturally aspirated engines. (*Flight* photograph.)

NOMENCLATURE OF AIRCRAFT—OSPREY IV

The official name of the Osprey aeroplane fitted with Kestrel V engine is Osprey IV.

ANTI-AIRCRAFT CO-OPERATION FLIGHT

The Anti-Aircraft Co-operation Flight returned from Weston Zoyland to Biggin Hill on September 4, 1935. Landing facilities are therefore no longer available at Weston Zoyland.

NOMENCLATURE OF ENGINE—DAGGER III

A new and "in line" type of air-cooled engine is being introduced. It has twenty-four cylinders arranged in four banks of six and the banks are disposed in "H" form. The official name of the engine is Dagger III.

The power rating, using fuel to Specification D.T.D. 230, is as follows:—

Rated power at normal r.p.m. and rated altitude	700-725 b.h.p.
Rated boost	+2½ lb.
Maximum boost for take-off	+3½ lb.
Rated altitude	3,500 ft.
Normal r.p.m.	3,500
Maximum r.p.m.	4,000

FOREIGN OFFICERS WITH THE R.A.F.

Capt. A. L. Ljungdahl, Swedish Air Attaché in London, is attached to No. 16 (A.C.) Squadron from September 23 to 28, 1935.

Lt. Afkhami, of the Iranian Air Force, has been attached to the R.A.F. station, Calshot, from September 9 for 29 weeks, and will be given a course with flying boats.

"E" COURSE SPECIALISTS

The undermentioned officers having successfully completed the specialist "E" course at Henlow which terminated in July, 1935, are granted symbols as under:—

Symbol E*

Flt. Lts. H. St. G. Burke, T. B. Cooper, G. D. Emms, F/O. W. F. Pharazyn.

Symbol E

Flt. Lts. G. F. Alexander, M. Q. Candler, R. P. Cauthery, L. Crocker, D. W. Lane, K. P. Lewis, B. N. Matson, H. L. Messiter, J. T. Mynors.

The following officers have been selected to attend the Torpedo course on H.M.S. *Vernon* which commenced on September 2, 1935:—

Flt. Lts. G. F. Alexander and B. N. Matson.

The following officers have been selected to attend an advanced course at the Imperial College of Science and Technology, commencing on October 8, 1935:—

Flt. Lt. G. D. Emms, and F/O. W. F. Pharazyn.

ROYAL AIR FORCE GAZETTE

London Gazette, September 17, 1935
General Duties Branch

F/O. L. M. Hooper is granted a permanent commission in this rank (September 13); C. E. R. Tait is granted a short service commission as Pilot Officer on probation with effect from and with seniority of September 2; Lt. V. C. Grenfell, R.N., is reattached to the R.A.F. as a Flying Officer with effect from August 26, and with seniority of January 17, 1932.

The following Pilot Officers on probation are confirmed in rank:—H. de C. A. Woodhouse (March 16); G. T. Gilbert (June 8).

Acting Pilot Officer on probation W. Foulsham is confirmed in rank and graded as Pilot Officer (September 14); F/O. T. H. Burleigh is transferred to the Reserve class A (September 12).

Stores Branch

The following Warrant Officers are granted permanent commissions as Flying Officers on probation with effect from and with seniority of September 5:—B. H. Alder, A. C. Dibben, L. Doyle, E. H. Free.

The following are granted permanent commissions as Pilot Officers on probation with effect from and with seniority of September 6:—M. C. R. White, K. T. Nicklin, W. J. Stutchbury, C. J. Salmon.

F/O. I. Lloyd takes rank and precedence as if his appointment as a Flying Officer bore date January 5, 1932, immediately preceding F/O. A. Wall on the gradation list. Reduction takes effect from August 16.

Commissioned Engineer Officer

Flying Officer on probation H. Hipwood is confirmed in rank (July 20, 1934).

Memorandum

The permission granted to Second Lieutenant E. H. Fraser to

retain his rank is withdrawn on his conviction by a civil power (March 29, 1934).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers
General Duties Branch

The following Pilot Officers on probation are confirmed in rank on the dates stated:—J. S. Hall, L. A. Howard, J. F. Inkster, P. H. Lewis, K. T. Murray (August 13); F. D. Paul (August 25).

Flt. Lt. P. G. Tweedie is transferred from class A to class C (May 7); Flt. Lt. H. A. Howes is transferred from class C to class A (June 13); F/O. H. J. Andrews is transferred from class A to class C (September 12); F/O. A. V. Harvey is transferred from class C to class A (August 11); P/O. C. N. Kirkus is transferred from class AA(ii) to class C (August 14, 1934); F/O. L. P. Timmins relinquishes his commission on completion of service and is granted the rank of Flight Lieutenant (September 18); F/O. B. N. Murgatroyd relinquishes his commission on completion of service and is permitted to retain his rank (September 2); F/O. R. F. Egford relinquishes his commission on completion of service (July 3).

SPECIAL RESERVE

General Duties Branch

P/O. P. Ruston is promoted to the rank of Flying Officer (July 30).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—P/O. C. E. R. Tait relinquishes his commission on appointment to a short service commission in the Royal Air Force (September 2).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Squadron Leader.—P. F. Fullard, D.S.O., M.C., A.F.C., to No. 5 (Army Co-operation) Squadron, Risalpur, India, 15.7.35; to command vice Sqn. Ldr. C. N. Ellen, D.F.C.

Flight Lieutenants.—G. F. W. Heycock, to No. 823 (F.S.R.) Squadron, 30.8.35. R. K. Hamblin, to No. 5 (Army Co-operation) Squadron, Risalpur, India, 20.7.35. P. J. R. King, to Cambridge University Air Squadron, 11.9.35.

Flying Officers.—N. C. Hendrikz, to No. 4 Flying Training School, Abu Sueir, Egypt, 31.8.35. J. R. L. Rumsey, to No. 503 (Co. of Lincoln) (B) Squadron, Waddington, 7.9.35.

Pilot Officers.—J. R. Jeurwine, to No. 823 (F.S.R.) Squadron, 30.8.35. H. Molyneux, to No. 801 (F.F.) Squadron, 28.8.35. J. C. Taylor, to No. 822 (F.S.R.) Squadron, 8.9.35. H. West, to No. 801 (F.F.) Squadron, 4.9.35.

Stores Branch

Pilot Officers.—The following Pilot Officers are posted to School of

Store Accounting and Storekeeping, Cranwell, on 6.9.35, on appointment to Permanent Commissions: C. J. Salmon, W. J. Stutchbury, M. C. R. White.

Accountant Branch

Flight Lieutenant.—R. T. Carter, to R.A.F. Station, Abingdon, 10.9.35.

Medical Branch

Flying Officers.—The following Flying Officers are Posted to Medical Training Depot, Halton, on 2.9.35, on appointment to Short Service Commissions:—A. S. Amsden, H. E. Bellringer, J. P. Carlile, C. M. Carlyle-Gall, W. J. L. Dean, T. J. M. Gregg, R. S. B. McClean, A. B. Marshall, S. R. C. Nelson, R. S. Peill, R. L. Soper, L. N. Trethowan, J. B. Wallace.

Dental Branch

Flying Officer.—D. P. Boyle, to Medical Training Depot, Halton, 2.9.35; on entry into R.A.F. on a non-permanent Commission.

FOR INSTRUMENT- and NIGHT-FLYING TRAINING

New Miles Design, the Nighthawk, a Special Adaptation of the Falcon

NOW that the Air Ministry require an instrument-flying certificate for "B" licence pilots, the class of machine suited to this form of instruction has come into prominence. One of the latest types is an adaptation of the Miles Falcon which recently won the King's Cup Air Race.

This new machine, called the Nighthawk, is basically the same as the Falcon, that is, it is a cabin monoplane with side-by-side seating and dual control. For general use a De Havilland Gipsy Major engine is fitted, but the Gipsy Six can be supplied if required. Construction is the same as that of other Miles machines and provides a very large hidden safety factor, because the plywood wing covering can practically be destroyed without failure occurring. Moreover, the repair and maintenance of the type has been proved to be very simple and able to be carried out by non-skilled labour.

The cabin is normally arranged to carry two pilots side by side in front with complete dual control, and either half of the cabin can be shut off from the other, while windows in one half can be obscured for instrument-flying instruction. Even in this condition the view from the unobscured side—that is, from the instructor's side—is still perfectly adequate, as the range of vision extends right across the machine.

An interesting feature of the central control system is that three forms of control can be arranged, so that instruction can be given in all types of control as fitted to various air-

craft. This is provided by having (a) a central control column which can be operated comfortably by either occupant, (b) a "Y"-type column, or (c) a "Y"-type column with wheels for aileron control.

Quick-release emergency exits and parachute seats are fitted. In the rear of the seats is a very large space suitable for camera equipment, wireless installation, drift or bomb sights, and the all-up weight allows carrying an extra pupil who would therefore be behind the instructor, where he could take note of all mistakes made by the pupil under the hood. A very full set of blind- and night-flying instruments is fitted on either side of the double instrument panel.

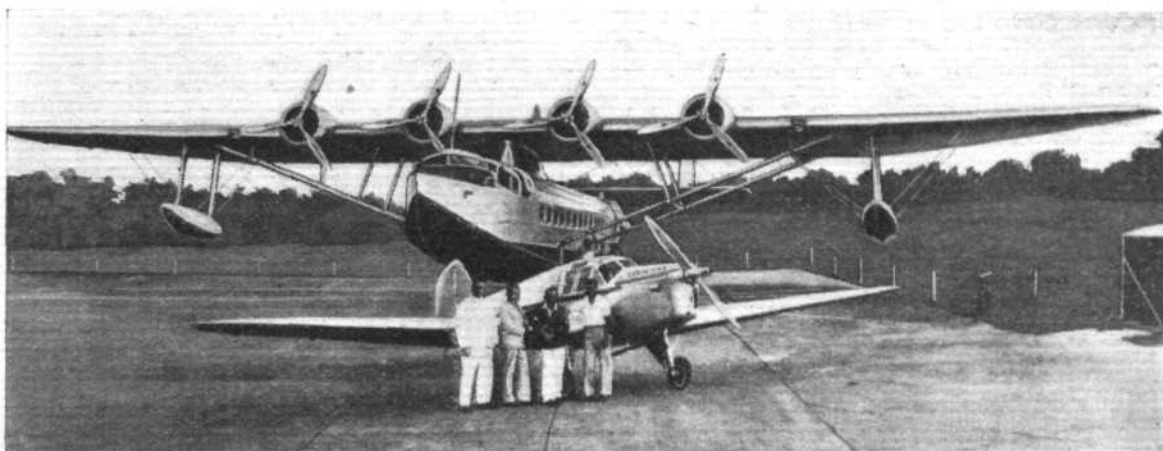
Harley-type landing lights are faired into the leading edges of both wings, and arranged so that they can be operated from the cockpit. The usual Miles hydraulically operated flaps will be fitted as standard, and these should prove of great value both for blind and night landings as a flat glide is very much less critical than that on a non-flapped machine.

With regard to the control column, it is interesting to note that the central position enables the pilot to spread his maps or navigating instruments across his knees, and this has been found to make both blind flying and navigating in general very much more simple and easy.

With the Gipsy Major engine the maximum speed at 1,000 ft. is 150 m.p.h. and the cruising speed 130-135 m.p.h., while the landing speed is between 40 and 45 m.p.h.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —



TRANSOCEANIC CONTRAST. This photograph, recently received from Para, Brazil, shows a B.A. Eagle in company with the famous Sikorsky S.42 *Brazilian Clipper*. The Eagle is that in which Señor Pombo, who is one of the group, flew the South Atlantic in 16 hr. 40 min. from Bathurst. The picture is of particular interest in view of the fact that the British Aircraft Manufacturing Company hold the rights of building the S.42 in England.

IMPERIAL'S NEW BOATS

Cantilever Monoplanes with Four Engines and Upper and Lower Decks : Greater Comfort Than in Any Previous Boat

THIS week it has become possible, for the first time, to reveal some of the interesting details of the new large flying boats which Short Brothers are building at Rochester for Imperial Airways Limited. Known as Empire Boats, from the fact that they are intended for the long Empire air routes of the near future, these boats, of which several are being built, are cantilever monoplanes, with four engines arranged abreast, two on each side, along the leading edge of the wing. Incorporated in their design are all the improvements which the long experience of Short Brothers has indicated to be desirable.

It will be recollected that some years ago this firm designed and built a military flying boat in which a peculiar gull's wing arrangement of the monoplane wing was used. That machine became known as the "Knuckleduster" on account of its peculiar appearance. The wing roots had a very pronounced dihedral angle and the two Rolls-Royce engines were mounted on the leading edge at the point where the outer ends of the sloping wing roots met the horizontal outer wing portions. The arrangement had, for its main object, the raising of the wings so as to keep the airscrews well clear of spray.

In the new flying boats Short Brothers have adopted a more orthodox wing arrangement. In order to obtain the necessary water clearance for the airscrews, the height of the hull has been considerably increased, while the ratio of beam to height has been reduced. Two advantages are secured by this arrangement; the hull weight is brought down, while extra cabin space is gained. The price that has to be paid for these advantages is a slightly longer "unstuck" run.

Apart from changes in beam-displacement ratio, the new Short boats differ from previous models in being flat-sided. It will, perhaps, be recollected that early Short boats had a fairly wide beam over the chine, above which was a sort of "waist" to reduce the width of the upper part of the hull. This also reduced the cross-section and, consequently, the drag, but increased manufacturing cost, as the curved sides above the chine called for a considerable amount of panel beating.

In the new boats the sides are flat and vertical, making for economical production and, at the same time, giving extra cabin space. The very great height of hull has made possible a disposition of passengers and crew by which the latter is accommodated in the upper part of the hull, under the roof,

so to speak, while the passengers' quarters are on the lower deck, from which, owing to the fact that the cantilever wing is placed on top of the hull, the view is excellent.

First and second pilots are placed in the extreme bows, a hemispherical window being provided through which the view obtained is quite exceptionally good. Just aft of the pilots' cabin is the wireless operator's quarters. Farther aft is a crew's compartment in which the head room is not great, but which has ample room.

The passenger accommodation is to be remarkably luxurious. Final details have not been decided upon, but the amount of cubic space per passenger will be surprisingly large and, if necessary, sleeping accommodation can be provided on board so that passengers travelling to Australia, for instance, need not go ashore when the machine moors for the night, but can remain on board. Consequently, if it is desired to make a very early start next morning, this can be done without inconvenience to the passengers.

Clean Design

Great care has been taken to keep the design "clean." For instance, all excrescences such as mooring bollards and so forth have been designed to slip into the hull when not in use. All rivets will be of the flush type, and the finish of hull and wings will be in very high-gloss paint. As a result of these refinements it is hoped to attain a maximum speed not very far short of 200 m.p.h. The range will, obviously, depend upon the route over which any particular machine is to be used. A maximum range of about 1,500 miles is being designed for, although, presumably, this will mean a somewhat reduced pay load.

Structurally, the new boats will follow normal Short practice, although in the wing construction certain innovations are to be made. For example, the main wing spar will be in the form of a rectangular box, with corners of extruded sections and a covering of light alloy. To the front and back of this single box spar the leading and trailing edges will be attached. Wing flaps of special design will be incorporated.

The new boats, which should be ready in the spring, will have an overall length of 88 ft. 6 in., with a wing span of 114 ft. When the machine is on its beaching chassis the overall height will be about 30 ft. The gross weight will be 40,000 lb.

Commercial Aviation**THE WEEK AT CROYDON**

*"Business as Usual" in the Gale : More Winter Services : What is an Airport?
Slaves of the Pen : Reading the Riot Act*

NEWSPAPER people seemed astonished that the watchword at Croydon during last week's gale was "Business as usual." Aggrieved voices on the 'phone pointed out that ships were proceeding sideways out of control all along the coasts and that trams were being blown over; surely we at Croydon could contribute something in the way of "thrill" or "drama"?

The answer was, of course, that aeroplanes operate in a much more refined element than do boats, and that the majority of our services were running as usual.

During the height of the gale there were one or two cancellations simply because travel might have been uncomfortable for passengers. I noted one case of wise and friendly co-operation whereby D.L.H. took a service to Amsterdam for K.L.M. because the former firm had a machine handy and the K.L.M. inward machine had been delayed by the weather.

All sorts of jobs come to air transport companies and, as an aftermath of the gale, K.L.M.'s Croydon manager was asked to arrange for a machine to stand by in Rotterdam ready to search for the yacht *Oceana*, said to have been sighted off the Hook of Holland, dismasted and semi-waterlogged. K.L.M. pilots on the route, and also those of D.L.H., were requested to keep a sharp look-out, too, and report the exact position of the yacht if they saw her. There were eight people on board, including a lady. Luckily the waterlogged vessel off the Hook turned out to be a derelict, and the *Oceana* later made Great Yarmouth, though in a battered condition.

Capt. W. Armstrong, one of Croydon's "oldest inhabitants," took the D.H.86 Dorado from here to make trial flights over the new Penang to Hong Kong air link. With him were First Officer N. Richardson, Wireless Operator H. W. P. Chapman and Flight Engineer A. D. Hands. They left Croydon on Monday, September 16.

The K.L.M. winter timetable, just issued, shows improved travel facilities as compared with last winter's schedule, in that the London-Berlin link will be continued daily, leaving Croydon at 08.20 hrs. and arriving Berlin at 14.20 hrs. The D.L.H. service leaving Croydon at 11.30 will reach Berlin at 17.35, and in the reverse direction the K.L.M. Berlin 'plane will reach Croydon at 14.20, and the D.L.H. 'plane at 12.25. Throughout the winter, therefore, travellers will have two services each way on the London-Berlin line.

Bristol Has D/F

LAST Monday Bristol's radio station was due to be in operation. The call signs are GJB and "Bristol," the frequency is 348 kc/s (862 m.), and the working hours from 8 a.m. till 9 p.m. Cardiff, one hears, will eventually have a short-wave beacon, so that Western Airways' ferry service should be able to operate with even greater regularity than at present. Splott aerodrome, with its perfect Channel approach, should be possible in almost any weather with a beacon to hang on to.

New Zealand's Aerodromes

FORTY-ONE aerodrome sites have been surveyed in New Zealand and twenty-nine grounds are either under construction or have recently been completed.

Altogether one hundred and five aerodromes and landing fields have been investigated, and of this number more than half are in the South Island. In the North Island nineteen surveys have been made and fourteen other grounds are being prepared or are now complete.

The bulk of the cost of all this work is being met by the Unemployment Board.

Transatlantic

PORT BOTWOOD, Newfoundland, is favoured by British official experts as North American base for Transatlantic seaplane routes. Mr. Ivor McClure, Operational Adviser to the D.C.A., has recently surveyed this and other possible sites in company with Mr. M. R. Banks, and his report is expected to point strongly to Port Botwood as a future terminus.

The choice of a Newfoundland base would mean an ocean crossing of a little more than 2,000 miles. This is about the same as that of the longest stage demanded by the Azores route and has the added advantage that each terminus is under

Another summer line to be continued through the winter for the first time is the London-Rotterdam-Halle/Leipzig-Prague line operated by K.L.M. in conjunction with the Czechoslovak Air Company.

According to a recent Notice to Airmen the term "Airport" (all in one word, like some rousing Elizabethan oath) will in future mean a place where customs and immigration facilities may be found, "so as to provide an appropriate port of entry to and from a country." It is to be hoped this is not all that the authorities regard as necessary for the various so-called alternative airports to Croydon in bad weather. Even the most distinguished customs and passport officials in the snugest of offices at an airport do not make the place an "appropriate port of entry to a country" when the weather is wicked and the pilot, for lack of proper ground assistance, cannot find the alleged airport—and has to fly away with the consoling thought that even if he had found it he would not have been able to land.

To Abyssinia

Last week a number of correspondents—I will not call them war correspondents at the moment—left Croydon by Imperial Airways for Cairo and Khartoum *en route* for Addis Ababa. The fact that they and the friends who saw them off took the gloomiest view of the situation can be explained by the rumour that there is only a few weeks' supply of our national beverage in the Abyssinian capital. Nor was there any need to explain to one luckless correspondent that Press censorship in those parts is said to be performed not on the "copy" but on the writer, and not with a blue pencil but with a two-handed sword.

Apropos the baseball player in America who boarded an aeroplane drunk, fought with the crew and was accidentally killed, it is interesting to note that in this country it is strictly against the provisions of the Air Navigation Act for drunken passengers to be allowed on board an air liner. Cases have occurred in the past of passengers becoming inspired with the idea of climbing out and practising wing-walking, but the presence of a watchful flight engineer with a spanner handy has usually acted as a sedative. More passengers who arrive at an airport in an elevated condition are quietly refused passage than is generally known. A. VIATOR.

British control. Weather conditions are poor over the Newfoundland route for some months of the year, but there is no reason to suppose that the navigational problems concerned are such as to put all-the-year-round operation of services out of court.

Five Years of the Batavia Line

YESTERDAY was the fifth anniversary of the inauguration of a regular air line between Holland and the Netherlands Indies. Pilot van Dyk, well known at Croydon, opened the service five years ago with a tri-motor Fokker F7b eight-seater.

In those days the pilots were free to make the 9,000-mile trip as fast as was consistent with safety, and on several occasions the journey was done one or two days faster than schedule. Early pioneer flights took fourteen days or so and the first regular service took 10-12 days. Gradually the schedule has been cut until it now takes only 5½ days. At first, too, the usual time for the trip was 85 flying hours, but this has been reduced to a fairly consistent 55 hours.

During the five years 251 flights to and from the Netherlands Indies have been made—a distance of about 4,530,000 miles. Twenty-four million letters have been carried. Freight and passengers have consistently been in excess of the space available during recent years, and already bigger machines than the Douglas type are needed.

First the service was fortnightly, then weekly, and when the change was made it is interesting to note that mail transport immediately increased by 100 per cent. Fairly recently the service has become twice-weekly in either direction, and in the short period mail transport has increased 30 per cent. and passenger traffic by no less than 117 per cent.

The journey is divided into twenty stages, so there is never more than 2 hr. 45 min. flying between pauses on the ground.

HESTON HAPPENINGS

The New Misr-Airwork Fleet : During the Gale : Flotsam

NUMBER three of the new Misr-Airwork fleet, a D.H.89, left Heston for Egypt last week in the hands of Mr. Rex Haytor. A fifth D.H.89 has now been ordered, and this, with the two D.H.86s, will bring the total number of new aircraft to seven. The second D.H.86 has actually been delivered to Heston, and was last week awaiting the arrival from Egypt of Mr. B. W. Figgins, who has been a Misr-Airwork pilot for two years. Mr. Figgins is to fly the old Spartan Cruiser back to England and fly out the new D.H.86.

At about 2.30 on Tuesday morning of last week, both the Heston wireless masts blew down with a beautiful flash of electricity. This put Heston radio out of action until mid-day, when two temporary masts, on which Manchester and Portsmouth could be heard, were erected. Croydon, meanwhile, had lost one mast, but was carrying on successfully with the other, and was able to handle Heston traffic until Heston got once more into action. Though everything ran to schedule in Wednesday's temporary lull, the only service to operate on Tuesday was one by Spartans between Cowes and Heston. Birkett Air Service and Air Commerce have both had machines out during the worst gale periods while searching for wrecks off the coast.

Of course, some remarkable air line speeds have been recorded, notably by Jersey Airways from Jersey to Heston (184 miles) in 1 hour and 50 seconds, and Spartan Air Lines from Cowes to Heston (68 miles) in 24 minutes. In the first case the average m.p.h. is obvious; in the second it was

170. The normal cruising speed of the Jersey D.H.86 is 135 m.p.h. and that of the Cruiser (Mark II) 115 m.p.h. A simple subtraction reveals the astonishing speed of the wind. On Wednesday afternoon, Jersey Airways, outward bound for St. Helier with eleven passengers, received from Jersey a wireless request to search an area 10 to 15 miles south of Jersey for a yacht reported in difficulties. After half an hour's search the yacht was located and seen to be safely in tow.

An internal effect of the gale at Heston has been the uprooting, in gusts, of papers from their own writing desks and their redistribution haphazard among other offices. Several members of the staff were engaged last week in a melancholy door-to-door procession crying after their lost documents.

From Ulster comes a poignant little story of the King's Cup. When the Ards airport heard of Mr. Henshaw's untimely descent into the Irish Sea, they despatched Mr. Bryant in a Cadet, with Mr. Warren (of Phillips & Powis) as passenger, to try to locate the wreck. Sighting a patch of oil upon the seething waters, they soon detected a little fishing craft which had gone to the rescue and nearby a buoy which obviously marked the tragic spot. They circled expectantly, and the sight of the fishermen holding up a square yard of doped fabric or three-ply could only mean one thing. Circling again, a little lower, they observed the said flotsam to be a flat-fish of enormous proportions, with white undercar and pink ailerons. Returning, disappointed, to Ards, they heard the news of the successful salvage effort.

From Ulster

AUGUST traffic at the Ards Airport showed an increase on that experienced in July. The month of August is, indeed, the peak period for air-line operators, and the memory of its (usually) clear skies and duplicated and triplicated services remains to console them for winter fogs and phobias; 484 air line passengers were handled in August, as against 442 in July. The regular passenger traffic is shared by Hillman's Airways and Blackpool and West Coast Air Services. In the month under review, Hillman's carried the greater number of passengers—270 in all. The Blackpool services were, however, fewer in number and carried more passengers per machine, each load averaging about four persons.

Hillman's carried 31,000 lb. of mail in August, again showing an increase on the previous month.

An Aerodrome in a Wind Tunnel

INSPECTIONS of the model of Rongotai Aerodrome, New Zealand, which is now being tested in a specially constructed wind tunnel, throws light on just what can be done to effect an improvement in the wind conditions prevailing at an airport.

In carrying out the tests, fine steel wires are stretched from side to side of the tunnel at heights corresponding to 500ft. and 1,000ft. above sea level, from which hang 6in. strands of silk at 8in. intervals. On the ground are placed sticks varying in height from one to two inches (representing 50ft. to 100ft.) attached to which also are fine strands of silk.

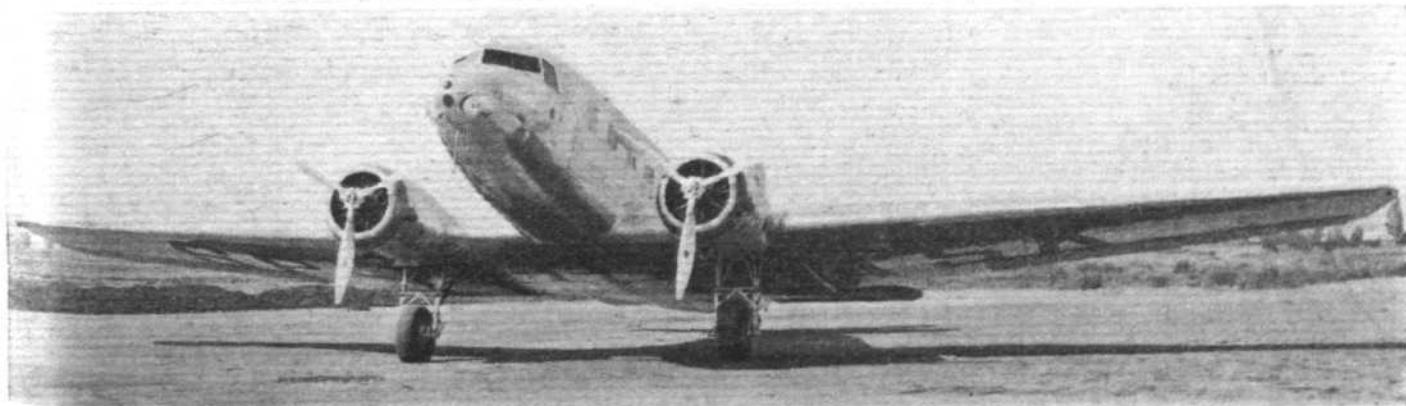
It is, apparently, most interesting to watch the strands. Quite a number behave very erratically, particularly over the aerodrome itself and at the base of Moa Point. There is a small hill immediately behind the aerodrome which seems to cause quite a disturbance, but as this is built up to no small extent nothing can be done in that direction.

The chief and almost only hope of improvement is at Moa Point and the valley adjoining. The valley causes a bad dead spot and results definitely indicate that this trouble and almost all the turbulence over Moa Point can be largely overcome by slicing off a portion of Moa Point and using the spoil to fill up the valley. Some of the spoil could also be used to reclaim part of the waterfront adjoining the Point, which, if carried out, would give a straight runway of over nine hundred yards.

Recent full-scale smoke tests indicate that the model reproduces the conditions actually prevailing at Rongotai with an accuracy that reflects much credit on the staff of the city engineer's department.

In carrying out tests in the wind tunnel it was found necessary to devise some means of measuring the wind velocity at various heights, and for this purpose a hot-wire anemometer was evolved, and this, in conjunction with smoke tests, gives very accurate indication of winds and eddies under various conditions.

As a consequence of investigations in the field and on the model it has been decided to embark on a progressive policy of improvement until the aerodrome will carry any internal traffic likely to develop for many years.



WHAT POLAND WANTED. Bristol Pegasus III moderately supercharged radials rated at 690 h.p. have been installed in a pair of Douglas D.C.2's for the Polskie Linje Lotnicze, "Lot," one of which is shown above.

HURRYING to WALES

Fifth Annual Race from London to Cardiff

Won by Capt. E.

W. Percival (New

Gull) at 218 m.p.h.



At Heston : Messrs. Dancy and Rowarth prepare to flag off the field. (Flight photograph.)

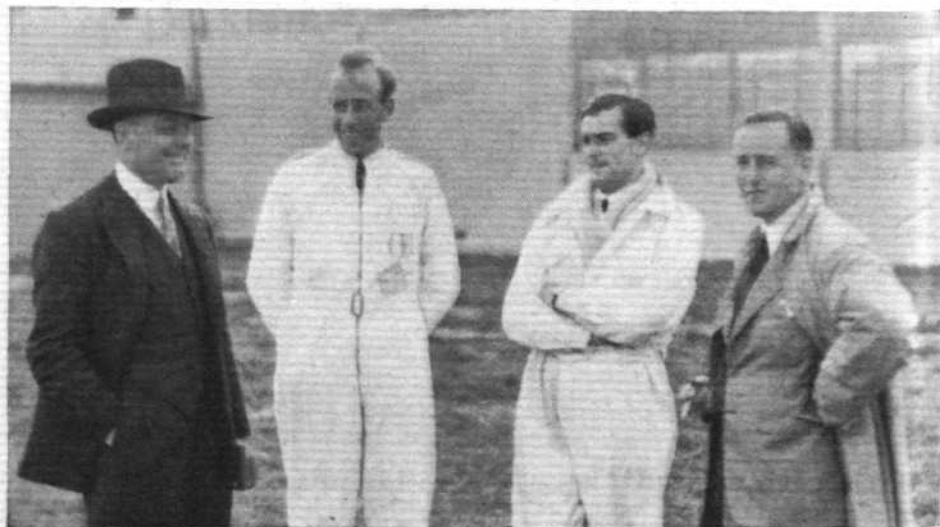
THAT a field of ten widely differing machines in a 120-mile race should all cross the line within less than three minutes must be something of a record in the history of handicapping. Practically all the re-sorting of positions took place within the last five miles of the race to Cardiff, and the first five competitors arrived within fifty seconds of one another, with three seconds between the winner, Capt. Percival, and the second man, Flt. Lt. Wilson (B.A. Eagle). The third home, Flt. Lt. H. R. A. Edwards, flying Mr. Cornwall's Hawk Trainer, was only thirty-six seconds behind Wilson.

Although the weather at Heston was not too good, the cloud-base was fairly high and the visibility some two or three miles; so everyone was surprised when Cardiff telephoned to say that the sky was sitting on them. A few of the pilots appeared to think that somebody was being over-cautious, inasmuch as it is possible to creep into Splott along the coast—but these pilots had evidently forgotten the gasometers, factory chimneys, and ironworks which must be faced if you do miss the aerodrome. However, matters unexpectedly improved a little later, and at 4.30 p.m. D. M. Bey, flying the B.A. Swallow, was flagged away by Mr. Rowarth.

The course was not a direct one, as the organisers wisely disapproved of long sea crossings by single-engined machines at racing altitudes, and a turn had to be made around a white cross on Beachley Point, near Chepstow. Nevertheless, a straight line drawn from there to Splott passes over quite enough sea and mud for a pilot who doubts the ability of his engine to stand up to full throttle. Only the twin-engined Monospar's pilot and three navigators—not to mention the luggage—felt entirely happy over that section. Flocks of sea-birds appeared to constitute the greatest risk of unconditional stoppage.

All the positions remained unchanged until the Severn had almost been reached, when the Monospar overtook Watson's "Germ Oil" Puss Moth and was simultaneously overtaken by Wilson's B.A. Eagle on its way into a temporary lead. Lord Patrick Crichton Stuart's Hobo had probably been passed before, but he was some miles off his course on this stretch. Meanwhile, the other entrants closed up in their original positions, and it was not until the last five miles or so that H. R. A. Edwards' Hawk Trainer, H. S. Broad's T.K.2, and the Mew Gull went past Bey's

Nearly all the winners discuss their chances: From left to right they will be recognised as Capt. E. W. Percival, Flt. Lt. H. R. A. Edwards, William Humble and Capt. Hubert Broad. (Flight photograph.)



Swallow and the Monospar, followed by Humble's Hawk Major. Bey afterwards said that he could hear the scream of the Mew Gull's Gipsy Six high above the gentler noise of his own Pobjoy.

On the line at Cardiff they were actually cheering Wilson when the Mew Gull appeared suddenly out of the murk from a slightly different direction to win by three seconds, and all the timekeepers' eyes were needed to sort out the first five finishers (including, to local delight, Mr. Norman Edgar's Puss Moth, flown by J. Mitchell) as they flashed by within seconds of one another.

Unfortunately, it was by then much too late and rapidly becoming too hazy for the pylon race to be run, and pilots, passengers, and others retreated in good order to the Angel Hotel, where they were happily subjected to the hospitality for which the Cardiff club is so well known, and where the prize-winners received their trophies and cheques.

THE LONDON—CARDIFF RACE.

	Start.	Finish.	m.p.h.
1. E. W. Percival (Mew Gull) ...	4 59 40	5 33 26	218.0
2. J. B. Wilson (B.A. Eagle) ...	4 45 58	5 33 29	152.5
3. H. R. A. Edwards (Hawk Trainer) ...	4 50 09	5 34 05	106.0
4. H. S. Broad (T.K.2) ...	4 51 32	5 34 08	172.0
5. J. Mitchell (Puss Moth) ...	4 39 44	5 34 09	133.5
6. W. Humble (Hawk Major) ...	4 54 02	5 34 22	182.0
7. K. G. Seth-Smith (Monospar S.T.25) ...	4 41 00	5 34 56	134.2
8. D. M. Bey (B.A. Swallow) ...	4 30 00	5 35 28	112.0
9. J. C. V. K. Watson (Puss Moth) ...	4 38 59	5 35 42	128.6
10. Lord P. Crichton Stuart (Hendy Hobo) ...	4 40 50	5 36 20	131.0

CORRESPONDENCE

The Editor does not hold himself responsible for the opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for publication in these columns.

ALTERNATIVE AIRPORTS

[3068] As winter approaches, air traffic companies begin to consider the advantages of alternative airports to Croydon when that terminus is shrouded in fog.

Several machines are closely following each other from the Continent when Q.B.I. is in force, and it may even be quicker to put down at Gravesend, Gatwick, or elsewhere. Airports may be farther from London than Croydon, yet passengers may reach that city quicker if a machine is No. 4 or 5 on the list. Each preceding machine must be given at least a quarter of an hour to land at Croydon before it is ordered by the Control Tower to go away, so the unlucky fourth or fifth may have around one hour to wait. Prompt use of an alternative aerodrome, even though sixty minutes by road from London, brings the passengers to their destination as quickly, at least, as awaiting the all clear signal. So much you explained in "The Outlook" last week.

An essential for alternative airports to the terminus is that conditions should be made as easy for pilots as at the terminus. At present there are few facilities at the alternative aerodromes whose sole recommendation, almost, is that they are outside the London fog belt.

There is talk, from time to time, of Gatwick and Gravesend rivalling Croydon as termini. With rapid train transport, which must also be very frequent, Gatwick may, perhaps, become a terminus for some air lines, thus relieving traffic congestion at Croydon. Gatwick is fortunate in possessing a prospective railway station right on the aerodrome itself, but if incoming air liners are to be adequately served I feel that a fast train to London every ten minutes will be essential. Air liners, especially those from nearer European capitals serving several long distance connections, are frequently delayed in Paris or Amsterdam for half an hour awaiting connections which are late owing to contrary winds, and thus they may arrive at Croydon an hour or so behind schedule. Whether a train can be run within ten minutes of an air arrival (at an uncertain time), and what is the commercial aspect of running such a train for a couple or three passengers are questions to which the owners of outlying aerodromes must find the answer.

One thing is certain: unless the aerodromes farther from London than Croydon can bring their landing grounds nearer to the metropolis in the matter of time (not miles) they have little chance of taking traffic from the present London Ter-

minal Aerodrome. With the steady march of progress in commercial aviation, the big air companies must look to a nearer approach to London, and not cast their eyes backwards towards comparatively fog-free airports farther afield. The conquest of fog is doubtless but a matter of time. Croydon is far enough from London when it is considered that, after the arrival of a plane fifteen minutes at least are spent in formalities, and forty more on the road journey.

Add fifteen minutes to sixty or seventy minutes on the road from one or other of the outlying airports which aspire to become termini, and you will soon conclude that the modern aeroplane will do the air journey from some European capital almost, if not quite, as quickly as the rest of the journey from airport to city centre can be done by road. The air passenger who pays to fly will not agree that a full 50 per cent. of the total journey time should be spent on the ground. The air company must legislate for: quicker transport from city centre to city centre, and this will not be attained by moving farther from London. London, W.I.

FESTINA LENTE.

PROMENADING?

[3069] I should like to draw your attention to an incident which, to my mind, was very risky. I was on holiday at Sidmouth, and on August 21, at about 6 to 6.15 p.m., a Dragon belonging to a well-known air line, and flying to the west, passed over the bay about forty feet above the sea. She was fairly full and not flying any too fast.

The cliffs round the bay range from 100 ft. to 500 ft., and the plane followed their line. Considering the fact that at this time of day the sun was shining obliquely over the cliff right in the path of the machine, I should have thought this procedure highly dangerous.

The pilot was flying so low that many people on the beach shouted, thinking he was going to crash into the sea, and he certainly did give that impression.

B. A. SPEN.

Cheam, Surrey.

IN BRIEF

A 17-year-old Danish enthusiast, Mr. Henry Larsen, is anxious to correspond with readers in this country. His address is: A./S. H. Jessen, Greve Strand, Taastrup, Denmark.

BOOKS REVIEWED

Max Immelmann, "The Eagle of Lillie." By Franz Immelmann. Translated from the German by Claud W. Sykes. (John Hamilton, Ltd., 8s. 6d. net.)

IMMELMANN'S name will always be remembered in the expression "Immelmann Turn," though some authorities maintain that this manoeuvre was invented to counter the attacks of Immelmann and the other pilots of the Fokker monoplane, instead of being, as is generally held, the means by which the famous German pilot came out of his dive in order to renew his attack. Whatever the facts may be, this biography of the hero by his brother Franz sheds no light upon them. A book about one of the two foremost Fokker pilots of 1915 which makes no mention of the famous Fokker tactics is a book with a very large blank in it.

Major Stempel, Aviation Staff Officer of the 6th Army, wrote of Max Immelmann, "By means of his simple diagrams he inspired us with such faith in the efficacy of his methods of attack that they were soon allowed to become the common property of all the fighting pilots of the 6th Army." His brother, also a flying man, apparently knew nothing about them, and Max himself wrote to his mother, "I do not employ any tricks when I attack."

Immelmann was, like Boelcke, a Saxon, and was by nature an engineer. Though he entered the regular army before the war, he did not like it, and went on to the reserve so as to return to civilian work. When a fighting *staffel* was organised on the Lillie front in 1915, he and Boelcke were its leading pilots, and they raced neck and neck in the number of Allied machines brought down. They were the foremost pilots of the Fokker monoplane. When Immelmann was killed on June 18,

1916, he had been credited with sixteen victories. His brother gives an account of his death which is quite at variance with the official British account. A few days before something went wrong with his interrupter gear and his own gun shot off his airscrew and forced him to land. His brother says that the same thing happened again, but this time it caused such vibration that the machine broke up and crashed. Up to the moment of his fall his brother's account of the fight with F.E.s of No. 25 Squadron, R.F.C., tallies pretty well with the British account, though the German calls the British aeroplanes "Vickers." The British account says that Second Lieut. G. R. McCubbin, with Corpl. J. H. Waller as gunner, caught up with a Fokker which was diving on a comrade, and with an accurate burst of fire sent it crashing down; but it was not learnt till a few days later that McCubbin's victim was Immelmann.

An interesting book which deserves a place in every war library.

F. A. DE V. R.

Heaven High, Hell Deep, by Norman Archibald (William Heinemann, Ltd., 8s. 6d. net).

THREE years ago a history of the American 95 Squadron of the First Pursuit Group was published, and it was not found possible to give that book a very favourable review. Now a very gifted writer who was also a pilot in that squadron has given his war experiences in book form, and it is a pleasure to be able to give this book very high praise indeed. The first part of the book gives the author's experiences in getting into the U.S.A. Flying Corps and in getting flying instruction in France. He gives the impression that in the American Army, very new to war as it was, muddle, officialism

and red tape struggled with one another for first place. Finally, as no training aircraft could be obtained, Archibald and a few others were taught to fly on two-seater Nieuports. This was such an achievement that the happy little band were speedily posted to crack squadrons, and our author found himself in No. 95, which was flying Spads.

The second part of the book is concerned with fighting experiences. Lieut. Archibald does not record a single victory of his own, but he gives an extremely vivid picture of the whole business and of the life in a fighter squadron, where everyone lived for the sake of the day's work, and, when that work was done, tried to forget all about it. It is a grim picture drawn with great skill and art.

At last Archibald was shot down. The third part of the book describes his experiences as a prisoner of war in Germany. The picture which he draws in this part is really gruesome. Whether American prisoners were treated worse than others by the Germans one does not know, and one cannot judge whether they gave more trouble than others to their jailors. Anyway the treatment to which Archibald and his American comrades were subjected was simply brutal. A squeamish reader would do well to skip this part, but, none the less, it is a powerful piece of descriptive writing. Not the least vivid part of the book describes the joy and relief when the Armistice brought liberation.

F. A. DE V. R.

SIR SEFTON BRANCKER

A Notable Biography

Sir Sefton Brancker. By Norman Macmillan (Heinemann, 21s).

SIR SEFTON BRANCKER had two careers, first as a soldier and secondly as a civilian, and that presented a double task to a biographer. Of his military career very little is known to the public, but as Director of Civil Aviation he became famous all over the world. Yet it has so happened that in this biography it is the military career which makes the most interesting reading, because Sir Sefton wrote nearly all of it himself. That is no disparagement of Capt. Macmillan's eloquent account of the career of the D.C.A., but that latter career was so full of many-sided activities that it is almost impossible to describe it. Sir Sefton himself left little in writing about the last years of his life, except astonishing lists of engagements to be kept, and certain lectures, speeches and letters.

Sir Sefton Brancker was a gunner, and described himself as a soldier born and bred. That makes his contempt for red tape all the more creditable. If anyone should say that he spent most of the great war in the War Office, which has been said of some men in a far from complimentary sense, it is useful to remind the world that he saw active service in the South African war, was wounded, and was mentioned in Despatches. During the Great War it is hard to imagine how the R.F.C. in the field would have fared if there had been no Brancker at the War Office to organise its expansion from four squadrons to vast dimensions. Sir Sefton's account of all his difficulties and fascinating reading. In particular, his account of differences with the Admiralty will be read with much interest. He writes cordially of Sir Murray Sueter, but trenchantly about Mr. Churchill as First Lord, and likewise about Sea Lords in general. It is not generally known that Brancker implored Gen. Sir David Henderson to quit the command in the field and come to the War Office as Director of Military Aeronautics, because he felt that a senior officer was needed there to deal with obstructions from other departments. Twice did Brancker leave the desk for the field. In 1915 he took over command of the 3rd Wing for a few months, "good months" he called them, and in October, 1917, after a disagreement with General (later Field Marshal Sir William) Robert-

son, he was given command of the Middle East Brigade for a short time. Thus he commanded the R.F.C. in Palestine during Allenby's victorious advance. Brancker wrote "Geoffrey Salmond was responsible for the organisation and preparation which led to our great success, and I feel guilty to this day at having supplanted him just as he was about to reap the fruits of his work." In another letter he wrote "It is wonderful what a rest-cure war can be after the storm and stress of the Cecil Hotel."

Brancker was too valuable a man to be long spared from headquarters, and when the new Air Council was formed in January, 1918, he became Controller-General of Equipment. He applied to Lord Weir to make him Master-General of Personnel, and was told "A think ye're a wee bit flippant for the pairsonnel," but still he got the appointment.

One of Brancker's greatest gifts was his foresight, and during the war he foresaw that some day civil flying would be one of the great things of the world. So, after the Armistice he resigned his commission and joined Mr. Holt Thomas in running war-type aeroplanes on commercial business across the Channel. Really the effort was made too soon, and when it failed it seemed that Brancker's judgment had been at fault. Not long after he was made Director of Civil Aviation, and began the second part of his career, through which he has become famous and won the right to a biography. Probably history will say that his greatest achievement was the flying club movement, while the foundation of the Guild of Air Pilots and Air Navigators also goes to his credit. Greater than any

cut-and-dried achievement was his restless energy in preaching always and everywhere the gospel of the air. That was his religion, and he never wearied in his missionary zeal. Everything which seemed likely to help on the movement received encouragement and usually active assistance from him. He toiled in his office, he visited aerodromes all over the world, and he made innumerable speeches, after dinner and before. He was a fluent speaker as well as an able writer, and he had the gift of getting on with all manner of men. His letter to the Dictator of Turkey, which began "Dear Kemal," is a classic instance. He believed in airships, but he perhaps had doubts about R.101. Ever an enthusiast, he died amidst a band of enthusiasts like himself in its tragic crash.

F. A. de V. R.



On the left is a war-time photograph of Sir Sefton Brancker as a Staff Officer in the R.F.C.; above is the last photograph taken of him—in company with Lord Thompson just before embarking in the ill-fated R.101. (*Flight* photographs.)

CARRYING the TORPEDO

First Description of the New Blackburn Gear, as Fitted to the Shark

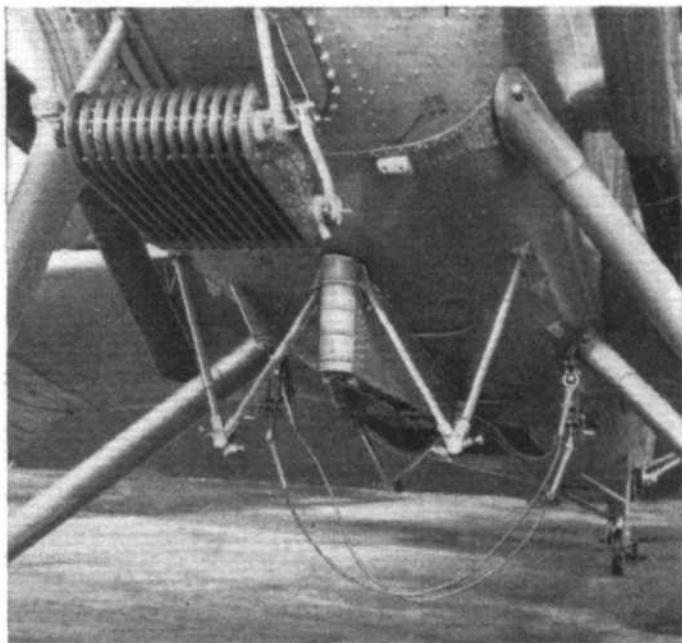
AN ingenious, but straightforward, torpedo carrier has lately been developed by the Blackburn Aeroplane and Motor Co., Ltd. It was designed with the object of reducing frontal area to a minimum, and of avoiding the mechanical complication and weight of a carrier having two positions, namely an "up" position for minimum drag, and a "down" position for launching.

A central beam of narrow box section and two double "Vee" crutches of streamline tube form the basis of the carrier. These items, together with the suspension gear which comprises the release cables, winches and release slips, are the only external parts.

The main central beam is tapered in elevation, having its maximum depth forward and its upper surface shaped to fit the underside of the aeroplane fuselage. Alclad sheet is employed. It consists of upper and lower channel sections, diagonal and vertical stiffeners, also of channel section, and riveted-on side plates. The nose of the beam is an Alclad fairing and the tail is a channel bracket, to which is attached the air release spring and cable. The beam is attached to the fuselage at two points.

The earthing contactor is spring-loaded and is housed in the nose fairing of the beam. Behind the contactor is a leather-faced aluminium casting forming the central support of the front crutch and adjustable to two positions for different types of torpedoes. Further aft in the plane of the suspension gear is a spring-loaded stop plate with which the stop on the torpedo engages. At the rear crutch position is a second leather-faced aluminium casting which is not adjustable.

A housing for the depth adjusting gear is formed by the rear portion of the beam. The gear consists of a main operating spindle, just behind the rear crutch, and two vertical domed spindles in brass bearings further aft. The spindles are interconnected by sprockets and chains and rotate simultaneously. Each has a spring-loaded and universally jointed key which connects with the appropriate plug on the different types of



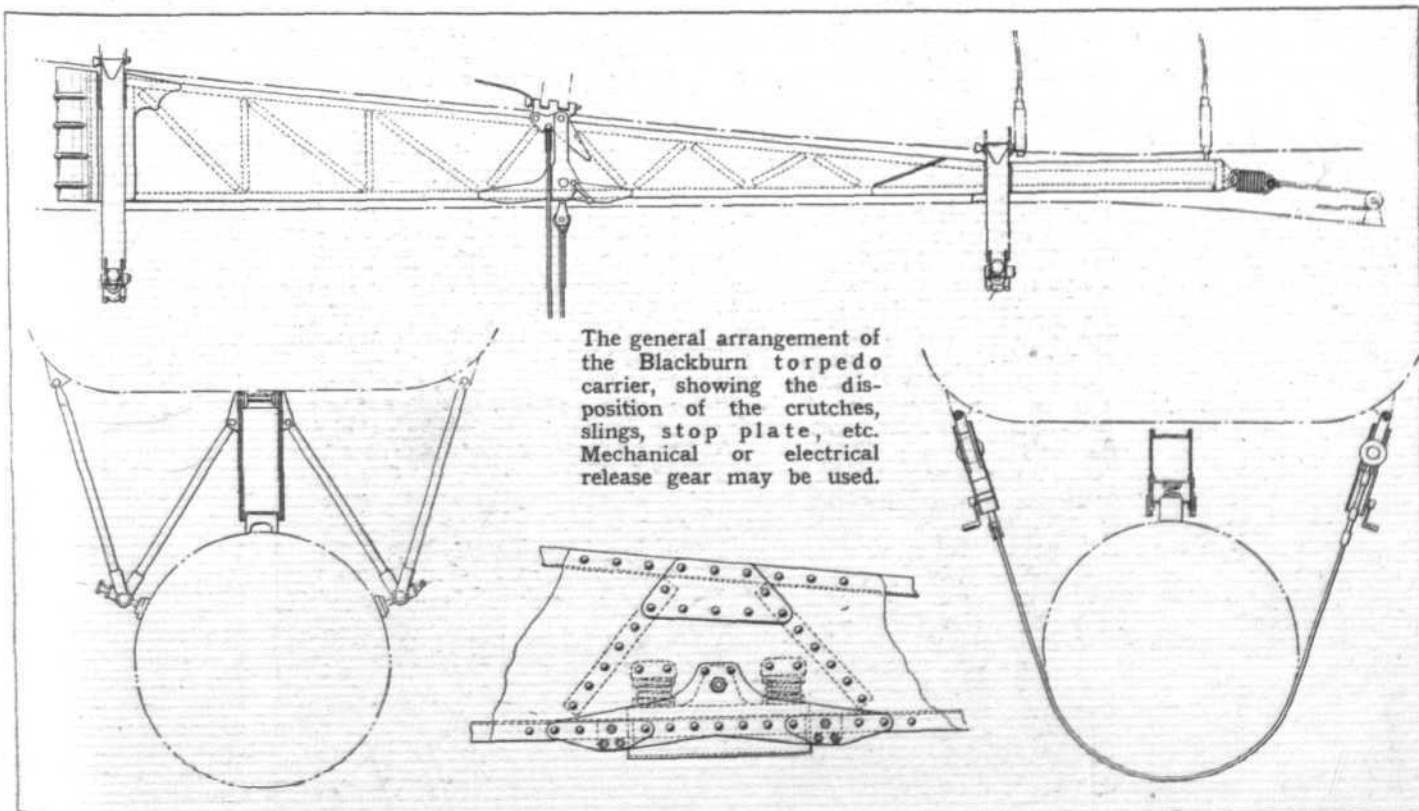
The Blackburn torpedo gear as fitted to the Shark.

torpedoes, the key not in use being hinged up at its universal joint clear of the projectile.

The crutches each consist of two "Vees" of streamline steel tubing, the inner extremities of which are bolted to brackets on the central beam, with the outer extremities attached by thumbscrews screwed into sockets on the fuselage. At the apex of each "Vee" is an adjustable foot which screws down on to the torpedo.

The actual suspension gear is attached by two thumbscrews to two brackets on the fuselage—in the case of the Shark the brackets are fitted to the rear undercarriage joints—and consist of a release slip and a small winch on each side and two release cables.

In addition, the electrical heating system comprises an electrical generator, voltage regulator, wiring and plugs, the depth adjusting gear being worked by the pilot from his cockpit by a small dashboard handle which turns an indicator showing the depth setting and operates the depth adjusting gear in the torpedo carrier beam through a flexible drive. Either mechanical or electrical release controls can be fitted.



THE INDUSTRY

Under One Roof

THE office of Aircraft Distributors, Ltd.—agents for Miles aircraft—have just been transferred to Hanworth from the Shaftesbury Avenue establishment. The office staff will thus be united with the distribution and sales staff under one roof. The new telephone number is Feltham 2383.

Industrial Furnaces

MANUFACTURERS interested in sheet metal work, heat treatment, forging, etc., will find much of interest in the catalogue entitled, "Incandescent Furnaces and Equipment," issued by The Incandescent Heat Co., Ltd., British Mills, Corn-wall Road, Smethwick, Birmingham.

The Autogiro in China

IN the photograph which appeared on page 314 last week of the first Autogiro in China, Marshal Chiang Hsu Liang is the figure in the centre; the uniformed officer on the left is his chief of staff.

King's Cup Echo

AS already recorded in *Flight*, K.L.G. plugs were used in the Gipsy Six engine of the Miles Falcon with which Flt. Lt. Rose won the King's Cup Race. A further interesting point which emerges is that not a single one of the twelve plugs was even taken out for examination, either during the 950-mile eliminating trial or the 350-mile final.

The Asboth Helicopter

IT is interesting to note that Asboth Helicopters, Ltd., was registered as a private company on September 16, with a nominal capital of £100. The directors are not named, but the registered office is at Farleigh House, Lawrence Lane, Cheapside, London, E.C.

The Asboth helicopter was dealt with in *Flight* of March 21, 1935, and illustrated in the issue of May 16.

X-rays and Magnesium Alloy

PREPARED by Mr. N. C. Hypher, B.A., B.Sc. (Lond.), D.M.R.E. (Camb.), consulting radiologist to High Duty Alloys, Ltd., a most informative treatise on the X-ray inspection of magnesium castings has been published by Magnesium Castings and Products, Ltd., of Slough, Bucks. Not the least interesting features are the X-ray photographs with which it is illustrated.

PUBLICATIONS RECEIVED

Aeronautical Research Committee Reports and Memoranda: No. 1640: The Aileron Power of a Monoplane, by A. G. Pugsley and H. Roxbee Cox. Price 1s. net; No. 1647: Abstract: The Influence of Pecking on the Fatigue Strength of Duralumin, by H. Sutton and W. J. Taylor. Price 3d. net; No. 1648: Approximate Method of Determining Aerodynamic Loading on Wings of Monoplane, by A. G. Pugsley. Price 6d. net; No. 1646: Hydrodynamic Forces and Moments on a Simple Planing Surface and on a Flying Boat Hull, by W. G. A. Perring and L. Johnston. Price 1s. 6d. net; No. 1600: Combined Index to the Technical Reports of the Advisory Committee on Aeronautics, 1909-10 to 1918-19. Compiled by H. J. Savers and G. B. Wardle. Price 8s. net; No. 1645: Reports on "Puss Moth" Accidents, by the Accidents Investigation Sub-Committee. March, 1935. Price 1s. 9d. net; H.M. Stationery Office, Kingsway, London, W.C.2.

Aeronautical Research Committee Reports and Memoranda: No. 1633: Reduction of Draughtiness of Open Cockpits, by B. Lockspeiser and A. Graham, price 1s. 6d. net. No. 1637: Aircraft Vibration, by H. Constant, price 2s. 6d. net. No. 1642: Whirling Arm Experiments on Lateral Stability, by A. S. Halliday and C. H. Burge, price 1s. 6d. net. No. 1644: Effect of Mass Distribution on Spinning Equilibrium, by S. B. Gates and R. H. Francis, price 1s. net. H.M. Stationery Office, Kingsway, London, W.C.2.

Aeronautical Research Committee Reports and Memoranda: No. 1632: Steady Flow in the Boundary Layer near the Surface of a Cylinder in a Stream, by L. Howart, price 2s. 6d. net. No. 1634: Flow induced by Jet of Air, by H. C. H. Townend, price 6d. net. No. 1635: Tests on Aerofoils Based upon R.A.F. 34 Section, by W. L. Cowley and R. Warden, price 1s. 3d. net. H.M. Stationery Office, Kingsway, London, W.C.2.

Aeronautical Research Committee Reports and Memoranda. No. 1639: Wind Tunnel Wall Interference on Pitching Moments of Large Models in Duplex Tunnel, by W. L. Cowley and G. A. McMillan, price 9d. net; No. 1648: Reaction on a Wing whose Angle of Incidence is Changing Rapidly: Wind Tunnel Experiments with a Short Period Recording Balance, by W. S. Farren, price 2s. 3d. net, H.M. Stationery Office, Kingsway, London, W.C.2.

Technical Report of the Aeronautical Research Committee 1933-34, Vol. I, Aerodynamics, price £1 5s. 0d. net; Vol. II, Structures, Engines, Instruments, etc., price £1 10s. 0d. net, H.M. Stationery Office, Kingsway, London, W.C.2.

Catalogue: Reduction and Variable Speed Gears, J. Stone & Co. Ltd., Deptford, S.E.14.

Folder: Hadfields' High Grade Steels for Automobiles and Aircraft to B.S.I. Standard Specifications. Hadfields Ltd., East Hecla & Hecla Works, Sheffield.

Last Flight, by Barbara Hall. Price 6s. net. Longmans, Green and Co. Ltd., 39, Paternoster Row, London, E.C.4.

Birmal Technical Data. Birmingham Aluminium Casting (1903) Co., Ltd., Smethwick, Birmingham.

Practical Performance Prediction of Aircraft, by Lt. Col. J. D. Blyth, price 5s. net; *Seaplane Float and Hull Design*, by Marcus Langley, price 7s. 6d. net; *International Index to Aeronautical Technical Reports, 1934*, price 5s. net; *Aeroplanes and Engines*, (Airsense), by W. O. Manning, price 3s. 6d. net. Sir Isaac Pitman and Sons Ltd., Parker Street, Kingsway, London, W.C.2.

Hispano Suiza Revue, September, 1935.

Catalogue: Hispano Suiza 12V liquid-cooled engine.

Noral Handbook, (general information; sheet and plate; extruded sections). Northern Aluminium Co., Ltd., Bush House, Aldwych, London, W.C.2.

Annual Report of the Director of the Meteorological Office for the Year ended March 31, 1935. Price 9d. H.M. Stationery Office, Kingsway, London, W.C.2.

Elementary Course of Air Navigation, by Flt. Lt. C. W. Hewitt. Price 3s. 6d., John Hamilton Ltd., 32, Bloomsbury Street, London, W.C.1.

Pilot Tex, by Arnold Hagenbach. Price 8s. 6d., John Hamilton Ltd., 32, Bloomsbury Street, London, W.C.1.

The Care and Maintenance of Aircraft. Fourth edition, July 1935, Bunhill Publications Ltd., 112, Bunhill Row, London, E.C.1.

Aeronautical Research Committee Reports and Memoranda No. 1638: Water Pressure on Hull of Boat Seaplane, by E. T. Jones and W. H. Davies, price 3s. 6d. net, H.M. Stationery Office, London, W.C.2.

Imperial Airways' Liners. A set of postcards, 1s. 6d. for 9, or 2d. singly. Raphael Tuck and Sons Ltd., Moorfields, London, E.C.2.

Coolidge Calendar for September: Fletcher Miller Ltd., Dukinfield, Manchester.

With Plane, Boat and Camera in Greenland, by Dr. Ernst Sorge. Price 18s., Hurst and Blackett Ltd., 34, Paternoster Row, London, E.C.4.

The City and Port of Hull, 1935-1936. City of Hull Development Committee, Guildhall, Hull.

AERONAUTICAL PATENT SPECIFICATIONS.

(The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

Published September 26th, 1935.

5977. SPERRY GYROSCOPE CO. LTD. and PARKER, M. Step-by-step electrical transmitters. (434,124.)

7391. FRASER, H. Overhead tracks or railways for cars, aircraft and the like. (434,444.)

7698. SPERRY GYROSCOPE CO., INC. Directional gyroscopes. (434,364.)

1527. LOHMANN, W. Goggles, especially for motorists and aviators. (434,324.)

6622. ARMSTRONG WHITWORTH AIRCRAFT, LTD., SIR W. G. and LLOYD, J. Gun mountings for aircraft. (434,337.)

NEW COMPANIES

In the notes below, for reasons of space, the "objects" of new companies are usually somewhat abbreviated.

ASBOTH HELICOPTERS LIMITED, was registered as a private company on September 16, with a nominal capital of £100 in 95 p per cent, non-cumulative preferred ordinary shares of £1 each and 100 ordinary shares of 1s. each. Objects: To manufacture aeroplanes, seaplanes, helicopters, flying boats and aircraft of all kinds, and component parts; to build and maintain accommodation for aircraft; to operate air lines, etc. First directors not named. Registered office: Farleigh House, Lawrence Lane, Cheapside, London, E.C.

PLANES LTD., Private company, registered September 16. Capital £330 in £1 shares. Objects: To manufacture light aircraft, gliders, etc. First directors: H. Bowen, 63a, High Street, Chelmsford, F. J. Martin, A. T. Rogers, F. J. Webb.

WALKER AIRCRAFT LTD., Private company, registered September 11. Capital: £2000 in £1 shares. Objects: To manufacture aircraft of all kinds, operate aviation grounds and taxi services, etc. First directors are: Wm. E. Reed, Frank W. A. Williams, Geoffrey E. Walker. Registered office: Bulford Road, Durrington, Wilts.

BACK FROM THE CONTINENT: In this Monospar Jubilee model, recently purchased by the Vacuum Oil Company, Mr. W. Faust (director) and Mr. H. J. White (aviation sales manager and pilot) have been touring their agencies in many countries on the Continent. Mr. E. C. Gordon England, joint managing director of General Aircraft Ltd., the makers of the Monospar, was also on board. (Flight photograph.)

